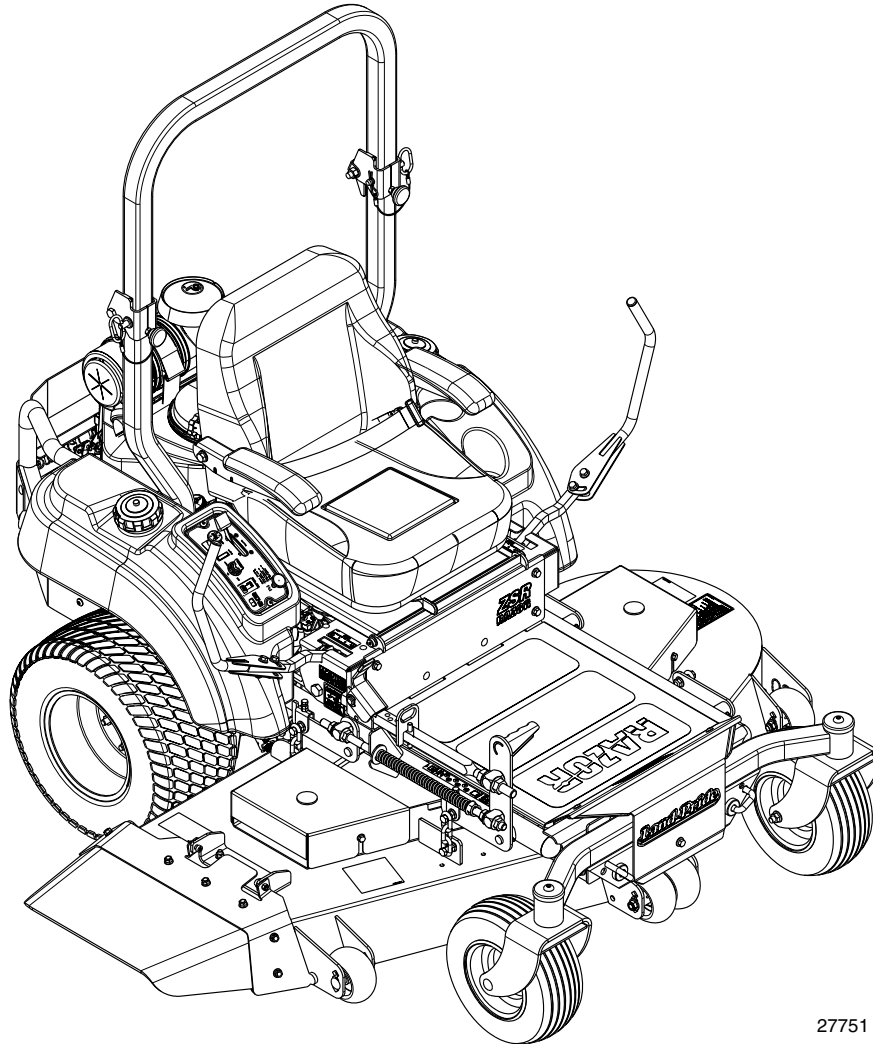


Zero Turn Mowers

ZSR54, & ZSR60

Accu-Z Razor®



27751

357-344M Operator's Manual



Read the Operator's Manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Cover photo may show optional equipment not supplied with standard unit.

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Important Safety Information	1	Section 4: Options & Accessories	29
Safety Labels	4	Folding Soft Top Canopy	29
Introduction	8	Electric Deck Lift	29
Application	8	Mulching Kit	29
Using This Manual	8	Light Kit	29
Owner Assistance	8	Inductive Tachometer	29
Serial Number	8	Section 5: Maintenance & Lubrication	30
Section 1: Assembly & Set-up	10	Maintenance	30
Uncrating Instructions	10	Maintenance Safety	30
Torque Requirements	10	Maintenance Schedule	31
Discharge Chute Assembly	10	Maintenance Locations	32
Folding ROPS	10	Torque Requirements	34
Electrical Cable Connection	11	Tires	34
Engine Preparations	11	Electrical System	35
Section 2: Operating Procedures	12	Hydrostatic Drive System	36
Mower Features	12	Hydraulic Oil Level Check	36
Operating Checklist	13	Transaxle Oil and Filter Change	36
Instrumentation	13	Transaxle Purging Procedures	37
Engine Oil Pressure Light	13	Fuel System	38
Hour Meter	13	Evaporative Emission Control System	39
Controls	13	Fuel Filter	39
Engine Starting	15	Draining The Fuel Tank	39
Engine Shut-Down Sequence	15	Belt Maintenance	40
Safety Start Interlock System	16	Deck Drive Belt Removal & Installation	40
Driving the Mower	16	Ground Drive Belt Removal & Installation	40
Accessing Area Beneath the Seat	18	Mower Blade Maintenance	42
Moving Mower with Stalled Engine	18	General Engine Maintenance	44
Safe Operating Instructions	19	Engine Oil and Oil Filter	44
General Operating Information	21	Check Engine Oil	44
Section 3: Adjustments	22	Change Engine Oil	44
Torque Requirements	22	Engine Air Filter	45
Tire Pressure	22	Internal Type Air Filters	45
Front Floating Axle	22	Canister Type Air Filters	45
Steering Adjustments	23	Air Filter Handling	46
Lower Control Lever	23	End of Season & Long Term Storage	47
Upper Control Lever	24	New Season Preparation	47
Seat Adjustment	24	Lubrication Points	48
Ground Drive Belt Adjustment	25	Section 6: Specifications & Capacities	50
Deck Drive Belt Adjustment	25	Section 7: Features & Benefits	53
Deck Adjustments	26	Section 8: Troubleshooting	55
Deck Cutting Height And Leveling	26	Section 9: Torque & Tire Inflation Charts ..	57
Deck Lift Assist Springs	27	Section 10: Warranty	58
Anti-Scalp Rollers	28		
Cutting Height Settings	28		



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Printed in the United States of America.

These are common practices that may or may not be applicable to the products described in this manual.

Safety at All Times

Thoroughly read and understand the instructions given in this manual before operation. Refer to the "Safety Label" section, read all instructions noted on them.

Do not allow anyone to operate this equipment who has not fully read and comprehended this manual and who has not been properly trained in the safe operation of the equipment.

- ▲ Operator should be familiar with all functions of the mower.
- ▲ The operator must not use drugs or alcohol as they can change the alertness or coordination of that person while operating equipment. The operator should, if taking over-the-counter drugs, seek medical advice on whether he/she can safely operate the equipment.
- ▲ Operate mower from the driver's seat only.
- ▲ Make sure all guards and shields are in place and secured before operating the mower.
- ▲ Do not leave mower unattended with engine running.
- ▲ Dismounting from a moving mower can cause serious injury or death.
- ▲ Do not allow anyone to stand between mower and equipment while backing up to hitch mower to the equipment.
- ▲ Keep hands, feet, and clothing away from power-driven parts.
- ▲ Wear snug fitting clothing to avoid entanglement with moving parts.
- ▲ Watch out for wires, rocks trees, etc., when using the mower. Make sure all persons are clear of working area.
- ▲ Do not carry passengers on the mower at any time.
- ▲ Turning mower too tight may cause hitched machinery to ride up on wheels. This could result in injury or equipment damage.

Look For The Safety Alert Symbol



The SAFETY ALERT SYMBOL indicates there is a potential hazard to personal safety involved and extra safety precaution must be taken. When you see this symbol, be alert and carefully read the message that follows it. In addition to design and configuration of equipment, hazard control, and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.

Be Aware of Signal Words

A Signal word designates a degree or level of hazard seriousness. The signal words are:

▲ DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

▲ WARNING

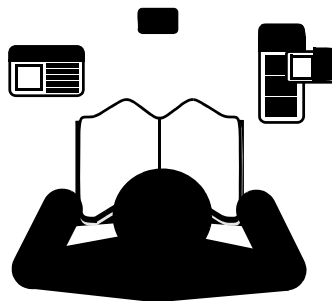
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

▲ CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

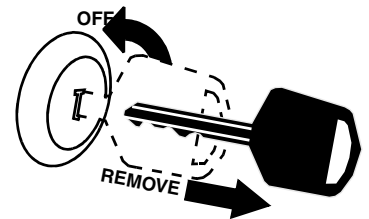
For Your Protection

- ▲ Thoroughly read and understand the "Safety Label" section, read all instructions noted on them.



Shutdown and Storage

- ▲ Put mower in park, turn off engine, and remove key.
- ▲ Store mower in a area where children normally do not play.



Parts Manual QR Locator

The QR (Quick Reference) code on the cover and to the left will take you to the Parts Manual for this equipment. Download the appropriate App on your smart phone, open the App, point your phone on the QR code and take a picture.



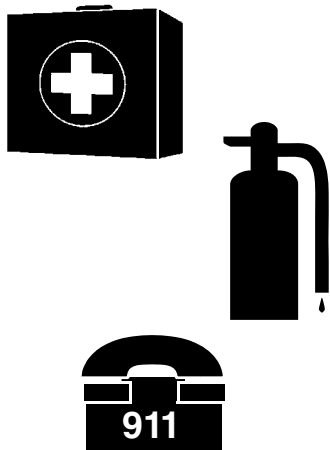
Dealer QR Locator

The QR code on the left will link you to available dealers for Land Pride products. Refer to Parts Manual QR Locator on this page for detailed instructions.

These are common practices that may or may not be applicable to the products described in this manual.

Prepare for Emergencies

- ▲ Be prepared if a fire starts.
- ▲ Keep a first aid kit and fire extinguisher handy.
- ▲ Keep emergency numbers for doctor, ambulance, hospital, and fire department near phone.



Tire Safety

- ▲ Tire changing can be dangerous and should be performed by trained personnel using the correct tools and equipment.
- ▲ When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.
- ▲ When removing and installing wheels, use wheel handling equipment adequate for the weight involved.



Wear Protective Equipment

- ▲ Wear protective clothing and equipment appropriate for the job. Clothing should be snug fitting without fringes and pull strings to avoid entanglement with moving parts.
- ▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- ▲ Operating equipment safely requires the operator's full attention. Avoid wearing radio headphones while operating machinery.



Keep Riders Off Mowers

- ▲ Riders obstruct the operator's view, they could be struck by foreign objects or thrown from the machine.
- ▲ Never allow children under 16 years of age to operate equipment.



Use Seat Belt and ROPS

- ▲ Operate only mowers equipped with Roll-Over Protective Structure (ROPS) and seat belt.
- ▲ Fasten seat belt snugly and securely to help protect operator from being thrown, crushed, or severely injured if a rollover occurs; and from falling off the mower and being ran over. Not using the seat belt & ROPS can result in serious injury or death.
- ▲ Wearing protective equipment such as safety shoes, safety glasses, hard hat, and ear plugs is highly recommended.
- ▲ **LOW STRUCTURES CAN FLIP MOWER OVER BACKWARDS.** Lower ROPS to drive under low structures such as tree limbs and doorways.



Avoid High Pressure Fluids Hazard

- ▲ Escaping fluid under pressure can penetrate the skin causing serious injury.
- ▲ Avoid the hazard by relieving pressure before disconnecting hydraulic lines or performing work on the system.
- ▲ Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- ▲ Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- ▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- ▲ **DO NOT DELAY.** If an accident occurs, see a doctor familiar with this type of injury immediately. Any fluid injected into the skin or eyes must be treated within a few hours or gangrene may result.



These are common practices that may or may not be applicable to the products described in this manual.

Practice Safe Maintenance

- ▲ Understand safe and correct maintenance procedures before doing work. Use proper tools and equipment, refer to Operator's Manual for additional information.
- ▲ Work in a clean dry area.
- ▲ Never run mower in an enclosed area. Mower engine exhaust emits carbon monoxide and other poisonous gases.
- ▲ Keep hands, feet, body extremities, and clothing away from all moving parts such as pulleys, belts, cutting blades, engine, and wheels. Don't wear loose fitting clothing while operating or servicing mower.
- ▲ Put mower in neutral, set park brake, disengage blades, turn off engine, remove switch key and wait for all moving components to stop before performing maintenance on the mower.
- ▲ Repairs or maintenance requiring engine power should be performed by trained personnel only.
- ▲ Allow mower to cool completely before performing maintenance.
- ▲ Disconnect battery ground cable (-) before servicing or adjusting electrical systems or welding on the mower.
- ▲ Observe safe fuel handling precautions. Fuel is flammable and vapors are very explosive.
- ▲ Do not grease or oil mower while in operation.
- ▲ Inspect all parts. Make sure parts are in good condition and installed properly.
- ▲ Remove buildup of grease, oil, or debris.
- ▲ Replace all guards and floor pan before putting mower back into service.
- ▲ Remove all tools and unused parts from mower before operation.



Safety Labels

Your Zero Turn Riding Mower comes equipped with all safety labels in place. They were designed to help you safely operate your implement. Read and follow their directions.

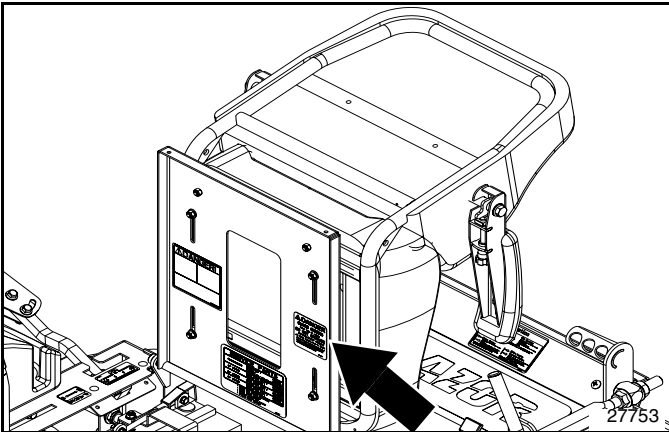
1. Keep all safety labels clean and legible.
2. Refer to this section for proper label placement. Replace all damaged or missing labels. Order new labels from your nearest Land Pride dealer. To find your nearest dealer, visit our dealer locator at www.landpride.com.
3. Some new equipment installed during repair requires safety labels to be affixed to the replaced component as

specified by Land Pride. When ordering new components make sure the correct safety labels are included in the request.

4. Refer to this section for proper label placement.

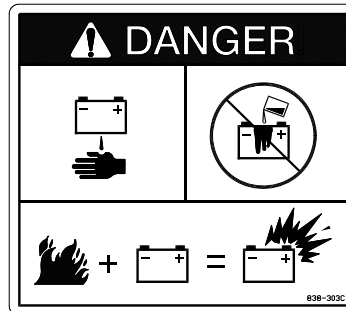
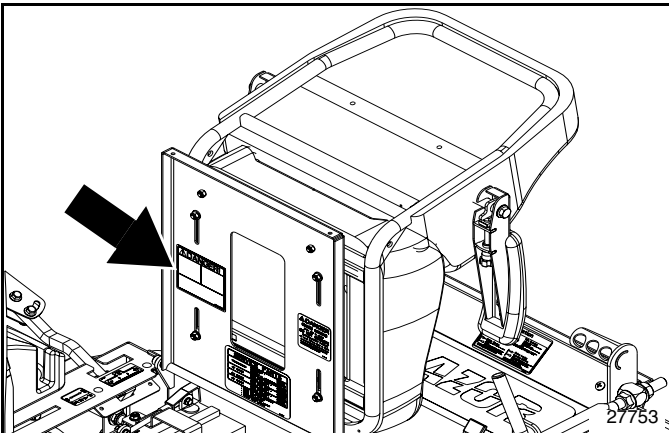
To install new labels:

- a. Clean surface area where label is to be placed.
- b. Spray soapy water onto the cleaned area.
- c. Peel backing from label and press label firmly onto the surface.
- d. Squeeze out air bubbles with edge of a credit card or with a similar type of straight edge.



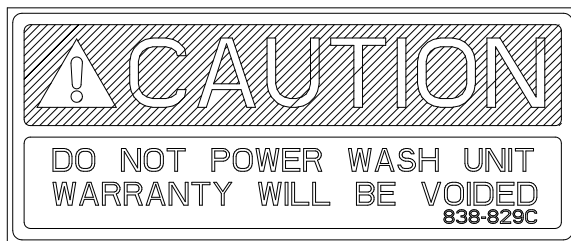
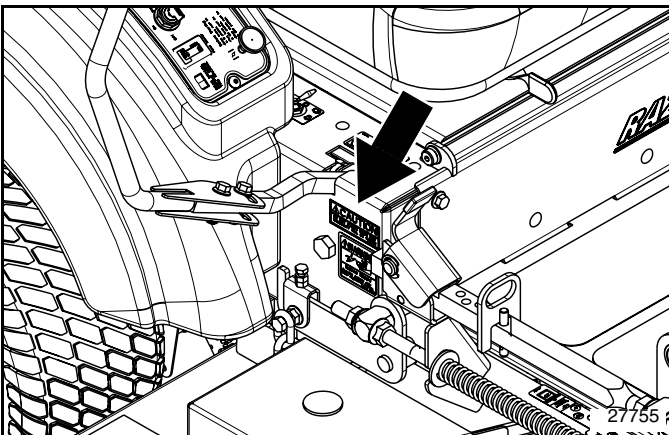
818-543C

Danger: Guard Missing
(Beneath The Seat Mount)



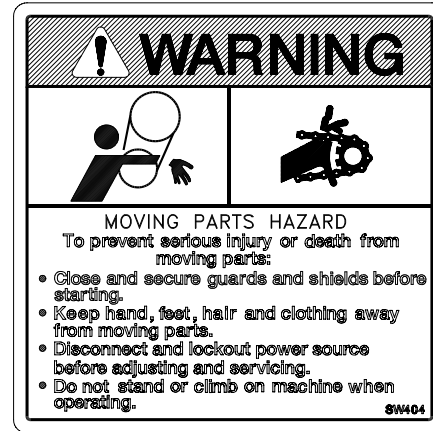
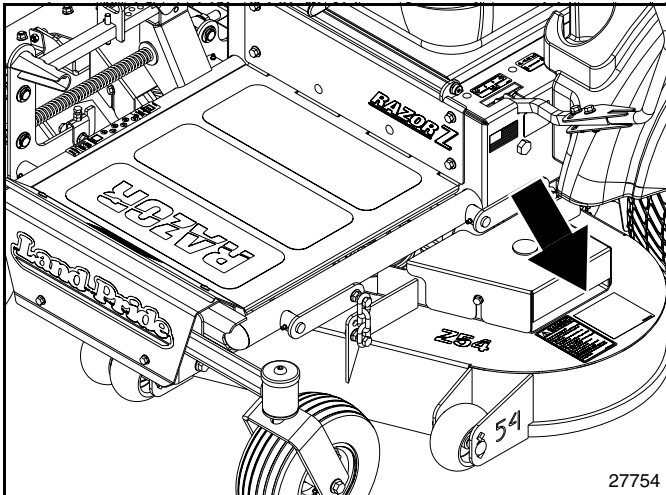
838-303C

Danger: Battery
(Beneath The Seat Mount)



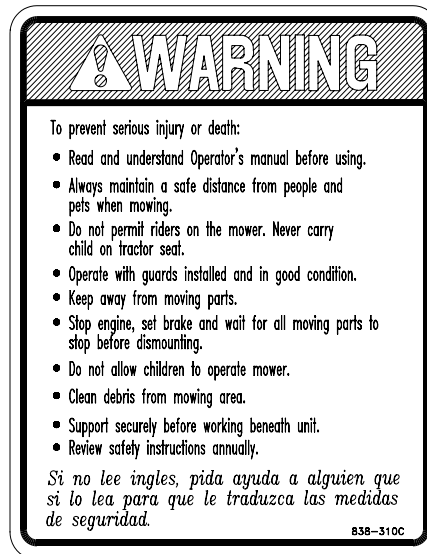
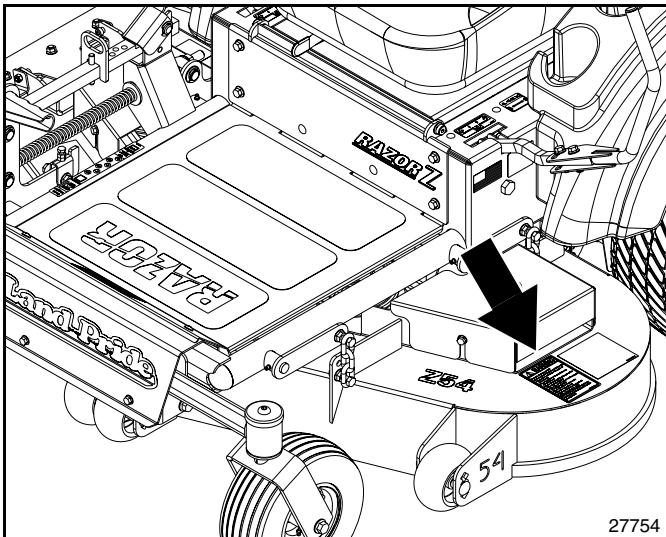
838-829C

Caution: Do Not Power Wash



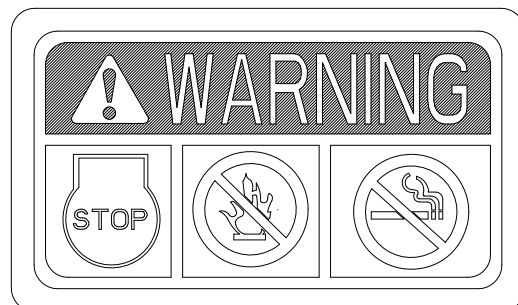
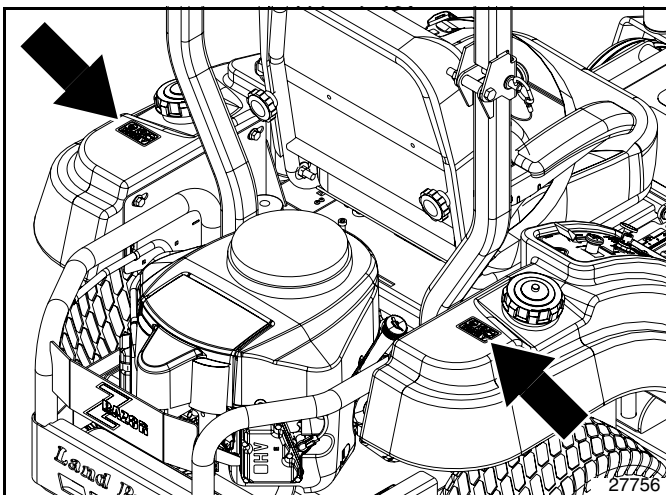
838-307C

Warning: Moving Parts



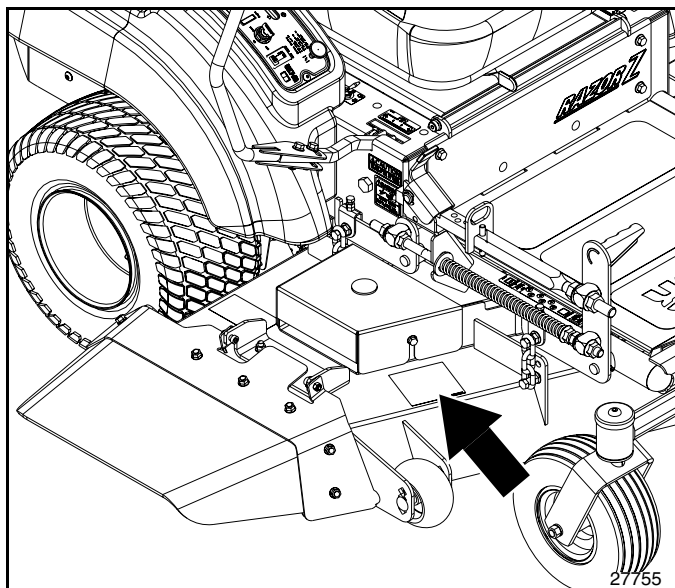
838-310C

Warning: General



838-833C

Warning: Fuel (Embedded in Fuel Tank)



WARNING

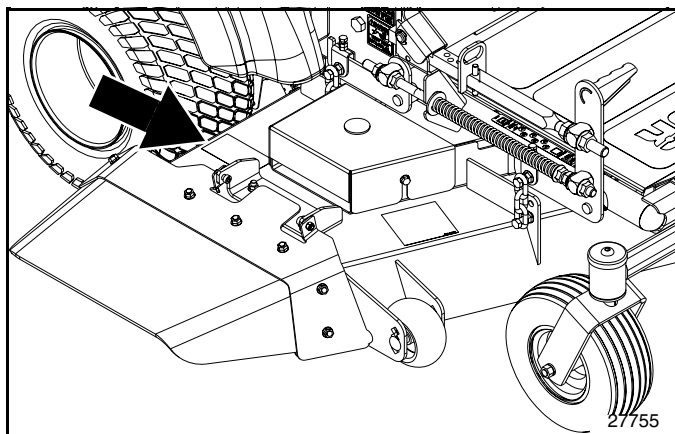
ROTATING BLADE HAZARD

- Keep Away - Rotating Blades
- To prevent serious injury or death from thrown object:
- Do not operate with deflectors removed.
- Do not point discharge toward people, animals or buildings when operating.
- Do not place hands or feet under deck when operating or when engine is running.

SW800

838-308C

Warning: Rotating Blade Hazard



WARNING

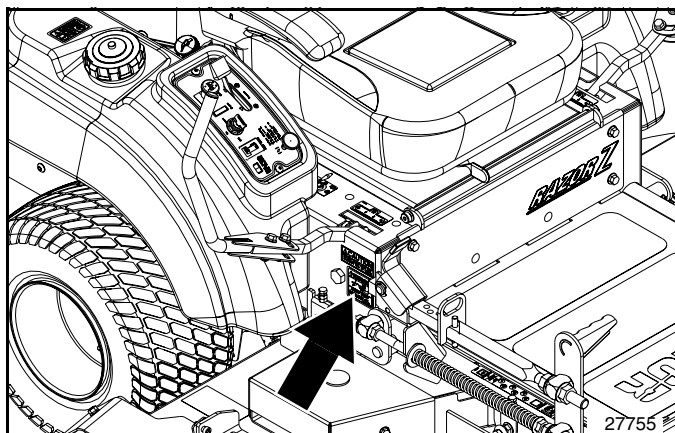
THROWN OBJECT HAZARD KEEP AWAY

- To prevent serious injury or death from thrown object
- Do not operate unless deflector is in place and in lowest position or complete grass collection system is in place.

838-306C REV.A

838-306C

Warning: Do not operator without deflector



WARNING

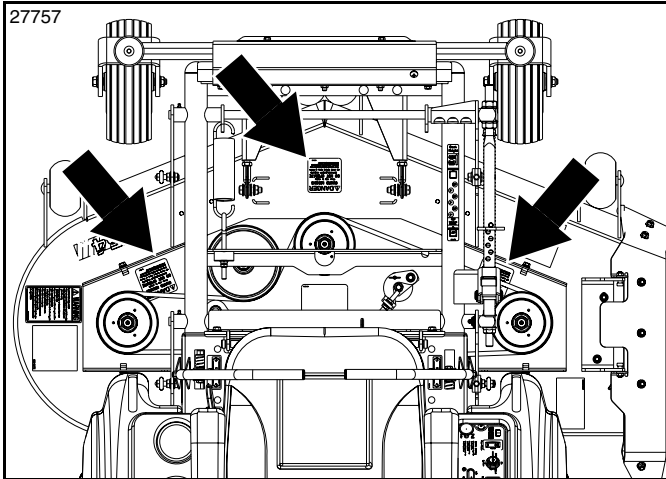
Rollover Hazard

Exercise extreme caution when negotiating inclines.

838-815C

838-815C

Warning: Rollover Hazard

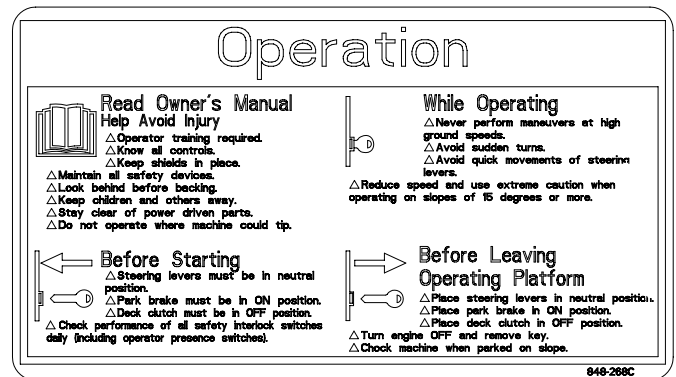
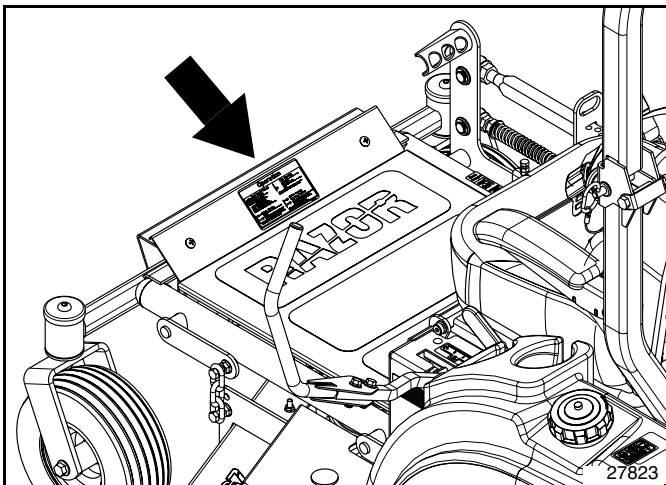


Floor platform & Pulley Shields
have been removed to show decals



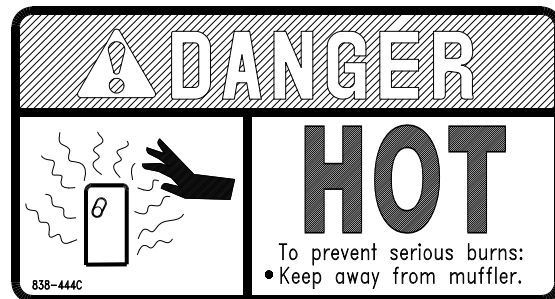
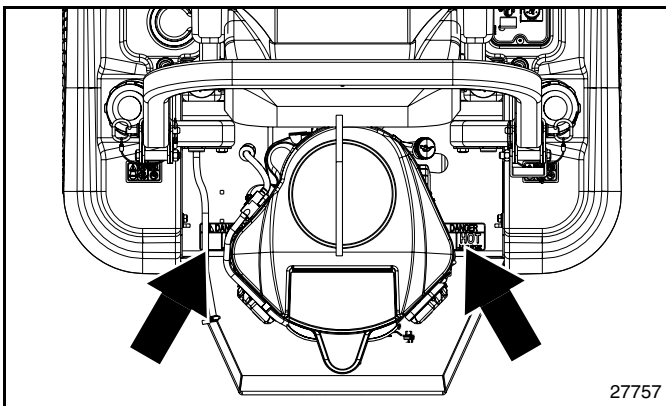
818-543C

Danger: Guard Missing
3- Places



848-268C

Warning: Safe Operating Instructions



838-444C

Danger: Muffler Hot
(Both Sides of Engine)

Introduction

Land Pride welcomes you to the growing family of new product owners. This mower has been designed with care and built by skilled workers using quality materials. Proper assembly, maintenance, and safe operating practices will help you get years of satisfactory use from this machine.

Application

The Land Pride Razor ZSR54 & ZSR60 residential class mowers are compact in size and ideal for homeowner grass maintenance. The Razor is a true zero-turn mower: When mowing alongside a building or landscaping, the Razor allows you to turn away and not hit anything with the rear end. Control lever heights are also adjustable, making the mower comfortable to handle.

See “**Specifications & Capacities**” on page 50 and “**Features & Benefits**” on page 53 for additional information and performance enhancing options.

Using This Manual

- This Operator’s Manual is designed to help familiarize the operator with safety, assembly, operation, adjustments, troubleshooting, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.
- The information contained within this manual was current at the time of printing. Some parts may change slightly to assure you of the best performance.
- To order a new Operator’s or Parts Manual, contact your authorized dealer. Manuals can also be downloaded, free-of-charge, from our website at www.landpride.com

Terminology

“Right” or “Left” as used in this manual is determined by facing forward while sitting in the operator seat unless otherwise stated.

Definitions

IMPORTANT: A special point of information related to the following topic. Land Pride’s intention is this information must be read & noted before continuing.

NOTE: A special point of information that the operator should be aware of before continuing.

Owner Assistance

The Online Warranty Registration should be completed by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

The parts on your Zero Turn Riding Mower have been specially designed by Land Pride and should only be replaced with genuine Land Pride parts. Contact a Land Pride dealer if customer service or repair parts are required. Your Land Pride dealer has trained personnel, repair parts, and equipment needed to service the implement.

For parts and service to your mower engine, contact your nearest engine dealer or call Customer Service Hotline provided below.

Owner’s Manual Part No.

Kawasaki - 18.5 HP 99920-2256

Kawasaki - 23 HP 99920-2250

Kawasaki - 23.5 HP 99920-2251

Service Manual Part No.

Kawasaki - 18.5 HP 99924-2094-01

Kawasaki - 23 HP 9992V-2093-03

Kawasaki - 23.5 HP 9992V-2093-03

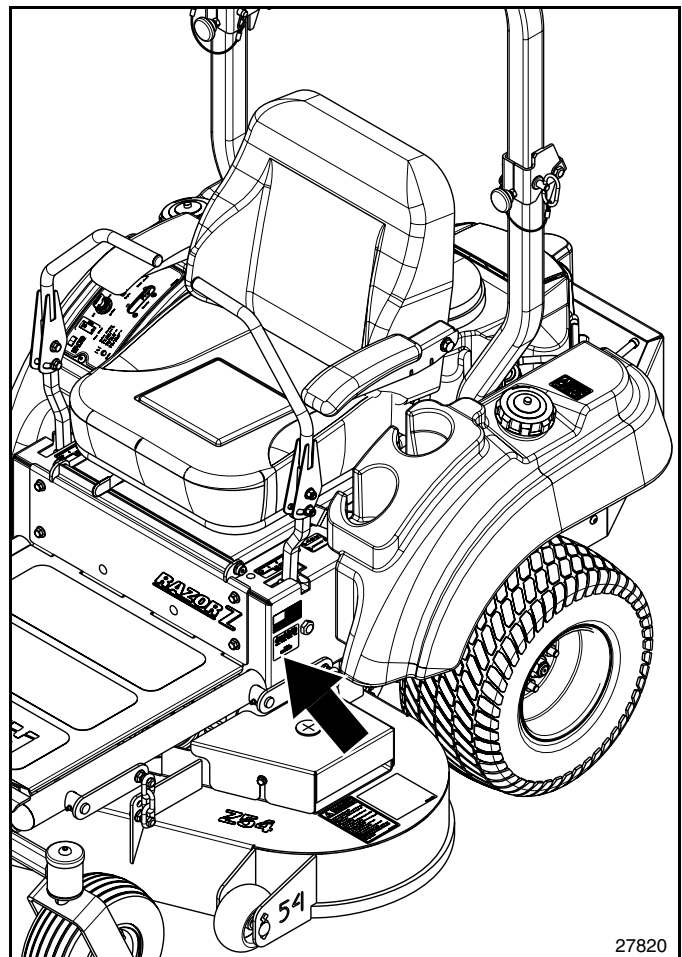
Service Hotline Phone No.

Kawasaki 1-800-433-5640

Serial Number

Model No. _____ Serial No. _____

For quick reference and prompt service, record model number and serial number in the spaces provided above and again on warranty page 58. Always provide model number and serial number when ordering parts and in all correspondences with your Land Pride dealer. Refer to Figure 1 for location of your serial number plate.



Serial Number Plate Location
Figure 1

Further Assistance

Your dealer wants you to be satisfied with your new mower. If for any reason you do not understand any part of this manual or are not satisfied with the service received, the following actions are suggested:

1. Discuss the matter with your dealership service manager making sure that person is aware of any problems you may have and has had the opportunity to assist you.
2. If you are still not satisfied, seek out the owner or general manager of the dealership, explain the problem, and request assistance.
3. For further assistance write to:

Land Pride Service Department

1525 East North Street

P.O. Box 5060

Salina, Ks. 67402-5060

E-mail address

lpservicedept@landpride.com

Uncrating Instructions

The shipping crate is assembled together with nails. It can be disassembled by prying or cutting the lumber apart. Be careful not to scratch, dent, or cut mower and/or seat during disassembly. It is best if two people are present while disassembling the crate.

1. Remove end and side panels from the crate.
2. Cut metal bands securing the front and rear wheels to the crate floor. Discard bands.

IMPORTANT: Do not drive mower off the crate floor, as this can bend or break components underneath the mower, especially the transaxles. Lift mower off the crate floor with a hoist or other suitable lifting device. Be careful not to damage the paint and seat while lifting the unit off the crate floor.

3. Lift mower from crate floor with a hoist or other suitable lifting device.

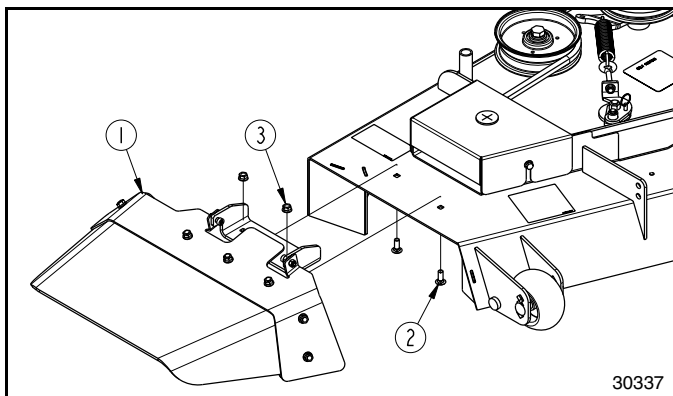
Torque Requirements

Refer to “**Torque Values Chart**” on page 57 to determine correct torque values for common bolts. See “**Additional Torque Values**” at bottom of chart for exceptions to standard torque values.

Discharge Chute Assembly

Refer to **Figure 1-1:**

1. Attach discharge chute (#1) to the deck by inserting 3/8"-16 x 1" GR5 round head square neck bolts (#2) up through the deck bottom as shown.
2. Secure with 3/8" flanged locknuts (#3). Tighten nuts to correct torque. See Torque Chart on page 57.



Discharge Chute Assembly
Figure 1-1

Folding ROPS

Refer to **Figure 1-2:**



DANGER

Low structures can make contact with the ROPS and flip the mower over backwards. Fold ROPS down when driving under low structures such as tree limbs and doorways.

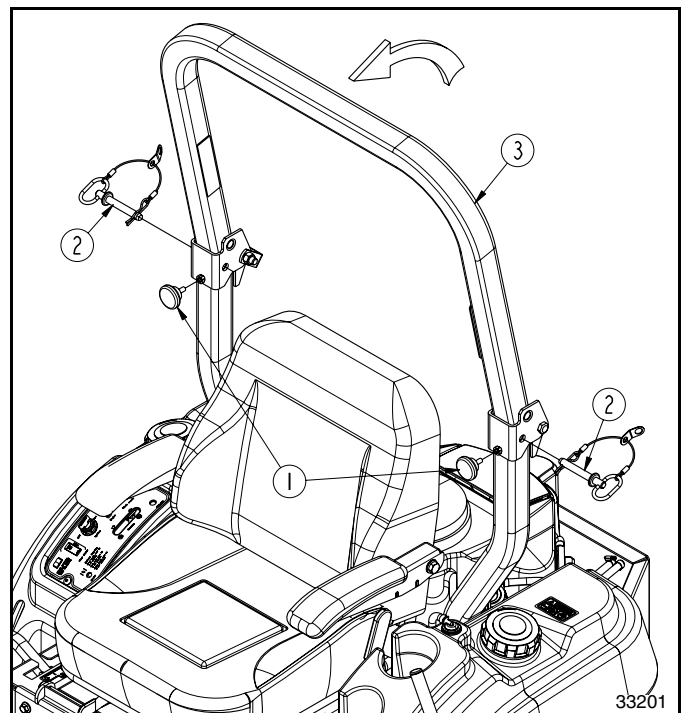


CAUTION

Keep hands and other body extremities away from hinged pinch points while folding and unfolding ROPS.

ROPS locking knobs (#1) are included in an attached parts bag.

1. Remove hitch pins (#2).
2. Rotate upper ROPS frame up to position shown.
3. Reinsert hitch pins (#2) and secure with attached hairpins.
4. Install locking knobs (#1) and hand tighten.



Folding ROPS Set-up Assembly
Figure 1-2

Electrical Cable Connection

Refer to Figure 1-3:



WARNING

Incorrect battery cable connections can damage the mower's electrical system and cause battery cables to spark. Sparks around a battery can result in a battery gas explosion and personal injury.

- Always disconnect negative (black) cable from battery before disconnecting positive (red) cable.
- Always reconnect positive (red) cable to the battery's positive (+) post before reconnecting negative (black) cable to the battery's negative (-) post.

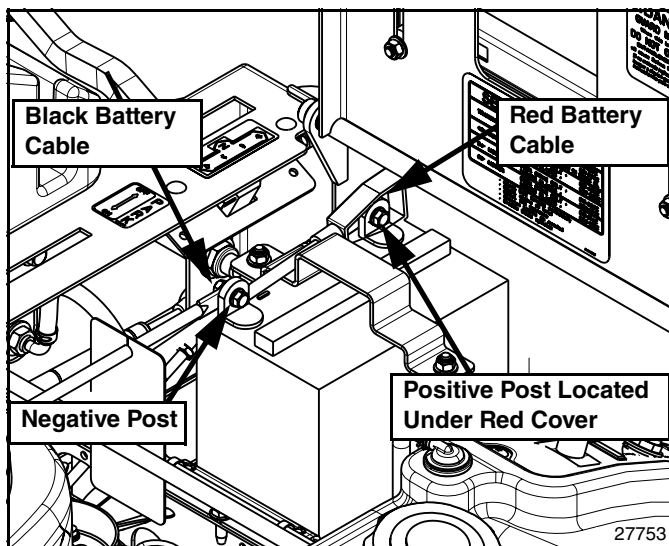


WARNING

Keep battery terminals from touching any metal mower parts when removing or installing battery. Do not allow metal tools to short between battery terminals and metal mower parts. Shorts caused by battery terminals or metal tools touching metal mower components can cause sparks. Sparks can cause a battery gas explosion which can result in personal injury.

IMPORTANT: The black negative battery cable is disconnected before leaving the factory and is to be disconnected after initial dealer set-up to prevent battery discharge while sitting on the dealer lot.

Connect black battery cable to the battery's negative post with 1/4"-20 x 3/4" GR5 hex head serrated screw, flat washer, lock washer, and nut before starting the mower. Tighten hex nut to the correct torque.



Connecting the Negative Cable
Figure 1-3

Engine Preparations

1. Check engine oil level at the dipstick. Add oil if below full mark. **Do not overfill.** Refer to Engine Operator's Manual for oil recommendation and to "Engine Oil and Oil Filter" on page 44 in this manual.

NOTE: Mowers are shipped from the factory without fuel in the fuel tanks.

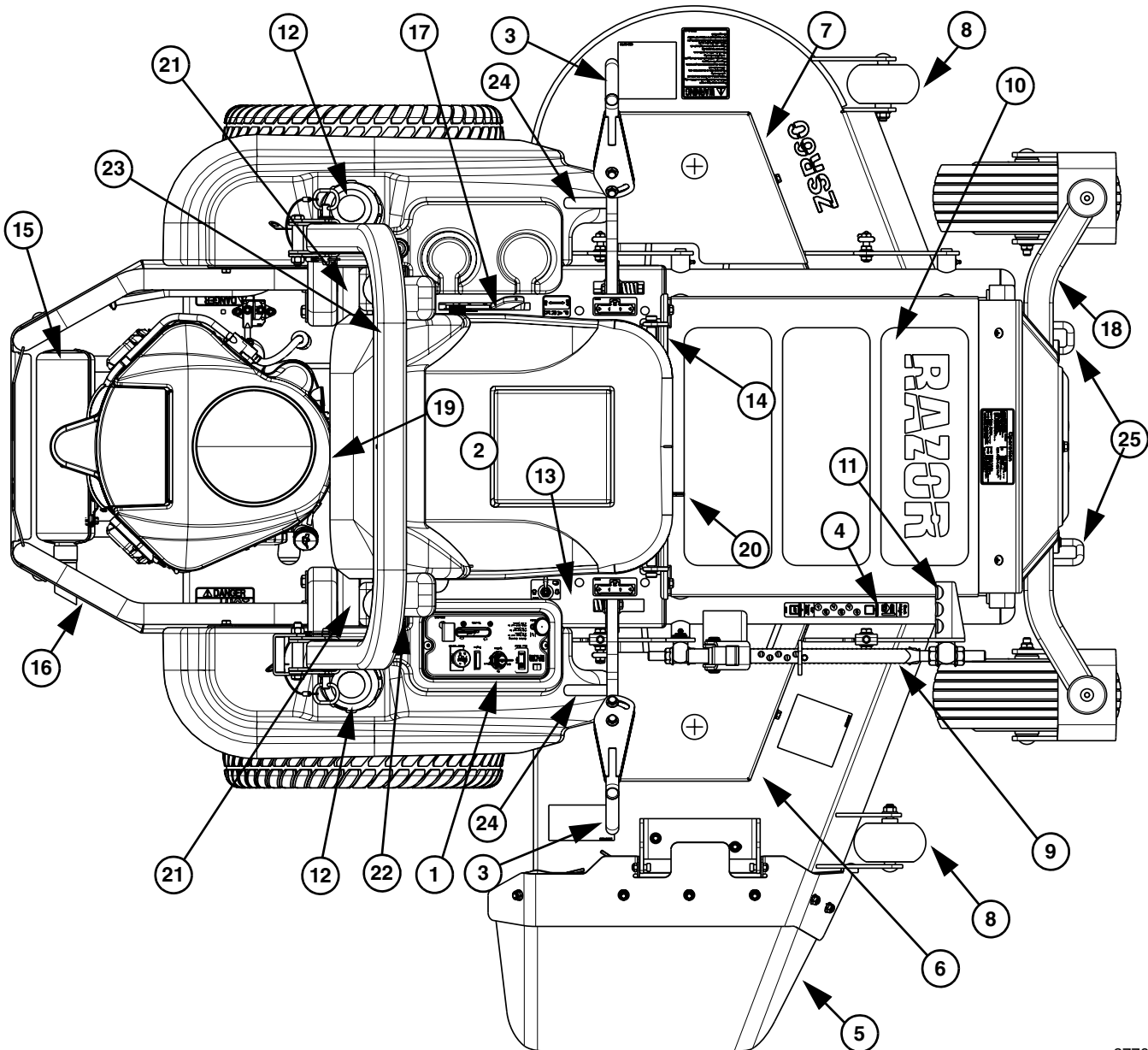
2. See instructions under "Fuel System" on page 38. After reading "Fuel System" instructions, add a small amount of gasoline with a fuel stabilizer to one of the fuel tanks.
3. Switch fuel tank valve to the fuel tank with gasoline. See "Left/Right Fuel Tank Valve" on page 14.

Mower Features

Refer to Figure 2-1:

Your Zero Turn Riding Mower is designed with innovative and state-of-the-art features. Knowing the location and

how these features work will make handling your mower more comfortable. Below is a list of major features to be reviewed in this section.



27764

- | | | |
|-------------------------------------------------|----------------------------------------------------------|----------------------------------------------|
| 1. Control Panel
(See Figure 2-2 on page 13) | 10. Floor Platform (Guard) | 19. Seat Release Latch
(Behind the Seat) |
| 2. Battery (Located under the seat) | 11. Deck Lift Pedal | 20. Seat Adjustment Latch |
| 3. Control Levers | 12. Fuel Caps & Tanks | 21. Expansion Tank for Hydraulic Oil |
| 4. Deck Height Indicator | 13. Left/Right Fuel Tank Valve
(Below Right Arm Rest) | 22. Seat Belt (Below Both Arm Rest) |
| 5. Discharge Chute (Guard) | 14. Seat Platform (Guard) | 23. Roll Over Protective Structure
(ROPS) |
| 6. Right Deck Cover (Guard) | 15. Muffler | 24. Fuel Sight Gauge |
| 7. Left Deck Cover (Guard) | 16. Rear Bumper/Muffler Shield (Guard) | 25. Front Pivot Axle Locks |
| 8. Anti-Scalp Wheels | 17. Park Brake Lever
(Below Left Arm Rest) | |
| 9. Deck Height Gauge Bar | 18. Front Axle | |

Zero Turn Riding Mower Features
Figure 2-1

Section 2: Operating Procedures

Operating Checklist

Hazard control and accident prevention are dependent upon awareness, concern, prudence, and proper training involved in operation, transport, maintenance, and storage of the riding mower. Therefore, it is absolutely essential that no one operates the mower without first having read, fully understood, and become totally familiar with the Operator's Manual. Make sure the operator has paid particular attention to:

- Important Safety Information, page 1
- Section 1: Assembly & Set-up, page 10
- Section 2: Operating Procedures, page 12
- Section 3: Adjustments, page 22
- Section 5: Maintenance & Lubrication, page 30

The following Operating Checklist should be performed before operating your mower:

Operating Checklist

✓	Check	Ref.
	Carefully read and follow all safety rules. Refer to "Important Safety Information".	Page 1
	Make sure all guards and shields are in place. Refer to "Mower Features".	Page 12
	Make all required adjustments. Refer to "Section 3: Adjustments".	Page 22
	Read and follow all operating procedures. Refer to "Section 2: Operating Procedures".	Page 12
	Check mower safety start interlock system daily prior to operation.	Page 16
	Perform all maintenance and lubrications. Refer to "Section 5: Maintenance & Lubrication".	Page 30
	Make sure there are no hydraulic leaks on the unit. Refer to "Avoid High Pressure Fluids Hazard".	Page 2
	Check blade for nicks and sharpness. Refer to "Mower Blade Maintenance".	Page 42
	Check mower initially and periodically for loose bolts and pins. Refer to "Torque Values Chart".	Page 57

Instrumentation

Engine Oil Pressure Light

Refer to Figure 2-2:

This light comes on when ignition switch is placed in **RUN** position and stays lit until the engine is running with safe oil pressure. Shut engine off immediately if light comes on during operation. Locate and correct problem before using the mower.

Hour Meter

Refer to Figure 2-2:

The hour meter registers 1/10 hour increments up to 9,999.9 total hours. The meter is connected to the ignition switch and records accumulative time only while the engine is running.

A plastic film covers the hour meter window. It protects the window from scratches during shop assembly and shipping. This covering should be removed by the owner before placing mower into service.

Controls

Refer to Figure 2-1 on page 12 and Figure 2-2 below for general location of controls described in this section.



WARNING

Do not operate mower while smoking.

Ignition Switch

Refer to Figure 2-2:

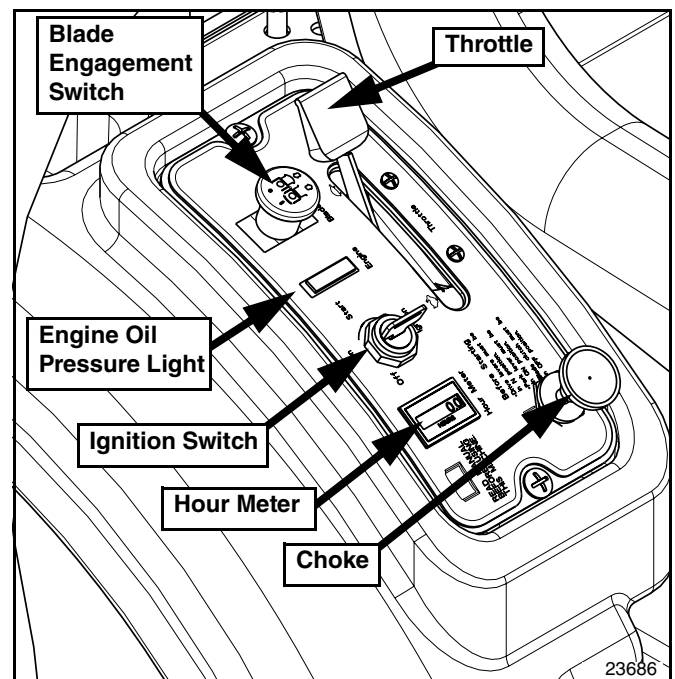
A three position ignition switch: off, run, and start is provided. With key inserted, rotate it clockwise to **START** position; release key when engine starts and switch will automatically return to **RUN** position. Turn key counterclockwise to **OFF** position to stop engine.

Throttle

Refer to Figure 2-2:

A cable is linked from engine to throttle for controlling engine speed. Move throttle lever forward to increase engine rpm and rearward to decrease rpm. Always travel and cut grass with throttle set at full engine rpm speed. Decrease travel speed by pulling back on the control levers. Reduce engine rpm only when mower is not traveling and just before engaging the cutting blades.

IMPORTANT: Always operate throttle at full engine rpm while traveling or cutting grass. Operating engine at a slow rpm may overheat engine and hydraulic pumps.



Control Panel
Figure 2-2

Section 2: Operating Procedures

Choke

Refer to Figure 2-2 on page 13:

A cable is linked from the choke control knob to the engine for choking the engine during starting. Pull up on the knob to turn choke control knob **(ON)**. Push down on the knob once the engine is running to shut choke control knob **(OFF)**. Set choke control knob in the **(OFF)** position soon after the engine has started.

IMPORTANT: DO NOT operate mower with choke on..

Blade Engagement Switch

Refer to Figure 2-2 on page 13:

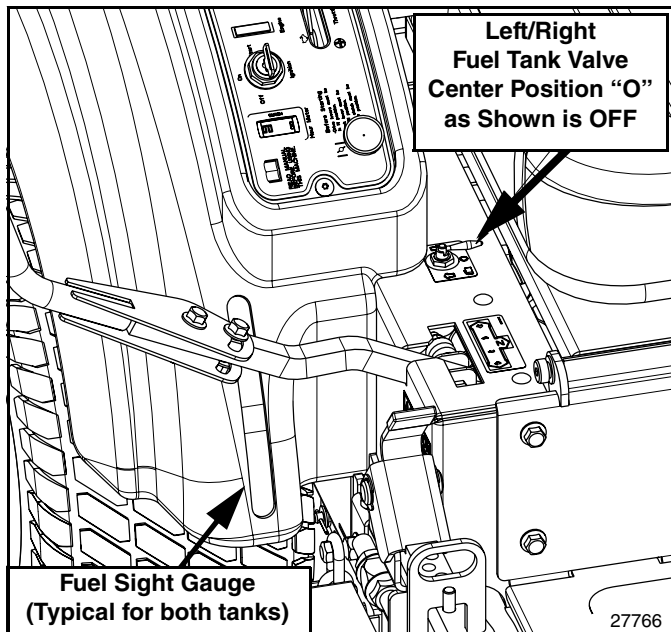
The blade engagement switch engages the deck blades. Pull switch up **(ON)** to engage blades and push switch down **(OFF)** to disengage blades.

IMPORTANT: With mower stopped and engine at half throttle, engage cutting blades. Increase throttle to full engine speed and then operate control levers to move mower. Clutch, belts and/or deck may be damaged if blades are engaged at full engine speed.

Left/Right Fuel Tank Valve

Refer to Figure 2-3:

Located on the right side of the seat platform is the Left/Right Fuel Tank Valve. It controls which fuel tank is in use. The valve lever must be over one of the two arrows to supply fuel to the engine. Arrows point to the fuel tank being used. Switch fuel tank valve from one tank to the other when fuel in the fuel sight gauge is low. The mower does not have to be turned off to make the switch. See “Fuel System” on page 38 for more information.



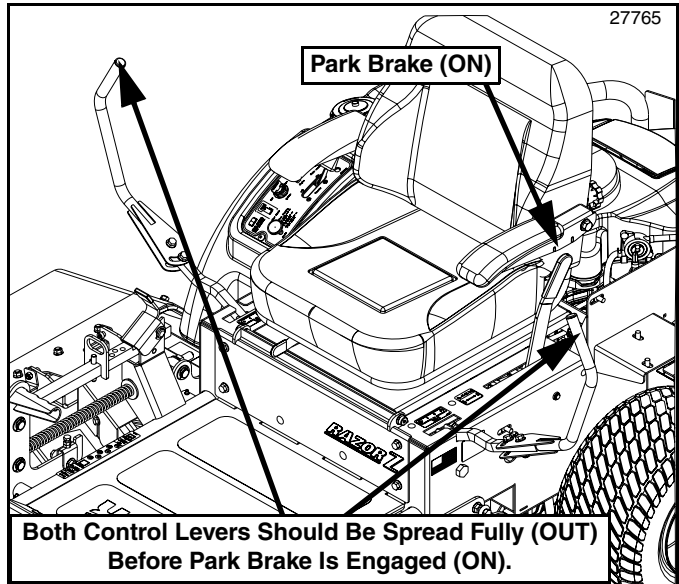
Left/Right Fuel Tank Valve
Figure 2-3

Park Brake

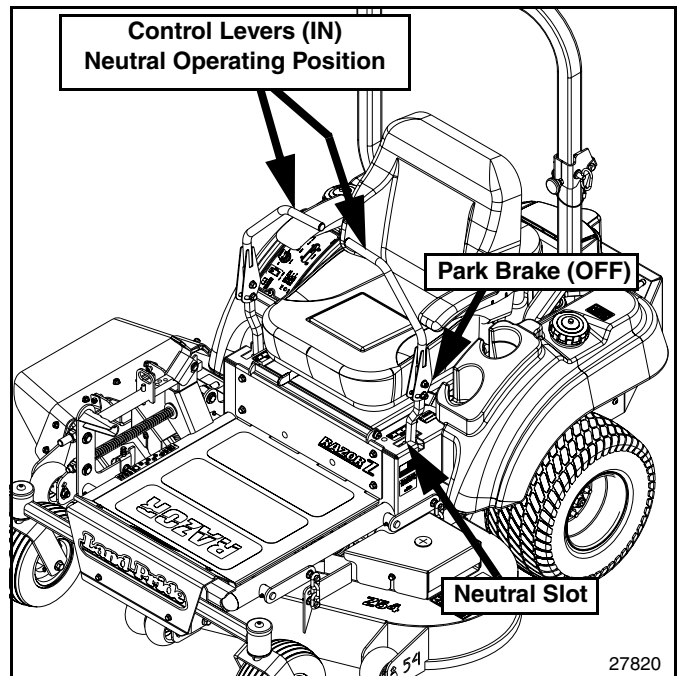
Refer to Figure 2-4 & Figure 2-5:

The park brake lever is linked to the wheel motors. The rear wheels are kept from turning when the lever is pulled up and back to **(ON)**. Push the lever forward and down to take the park brake **(OFF)**.

Mower engine will stop running if the park brake is set to **(ON)** before spreading both control levers **(OUT)** or if one or both control levers are moved **(IN)** before moving the park brake to **(OFF)**.



Control Levers Fully OUT (in Park Position)
Figure 2-4



Control Levers Fully IN (In Neutral Position)
Figure 2-5

Section 2: Operating Procedures

Control Levers

Refer to Figure 2-4 & Figure 2-5 on page 14:

The control levers are used to steer, accelerate, decelerate, stop, and change direction of travel.

Always move both control levers to neutral and **(OUT)** before setting park brake to **(ON)**. Always leave park brake and control levers in this position until ready to start traveling. Move park brake to **(OFF)** before pulling control levers **(IN)**. Start moving by moving control levers either forward or rearward from neutral position.

See “**Driving the Mower**” on page 16 for a detailed description of operating the control levers.

Deck Lift Pedal

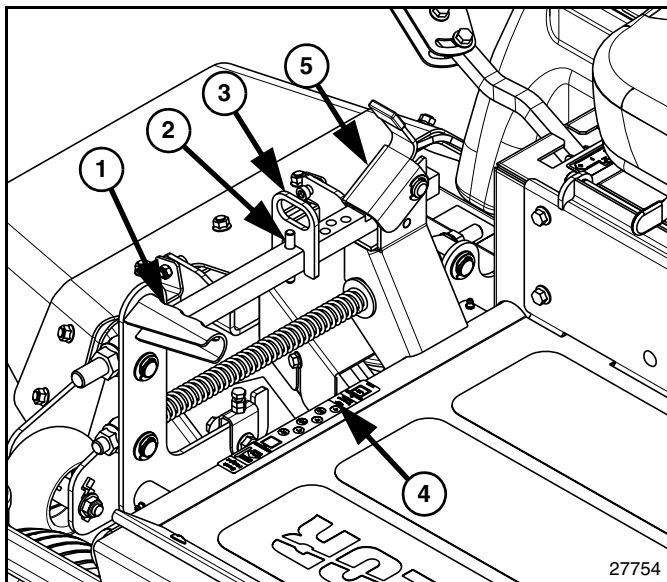
Refer to Figure 2-6:

The deck lift pedal is used to raise and lower the mower deck when setting the deck to the desired cutting height.

1. Push forward on deck lift pedal (#1) with your right foot to raise deck fully up.

NOTE: Measurement provided on the deck height indicator (#4) is with deck stop pin (#2) facing toward stop handle (#5). If deck stop flat bar (#3) is facing toward the stop handle as shown, add 1/4" to the deck height dimension given.

2. Use deck height indicator (#4) to locate desired cutting height pin hole. Place deck height locking pin (#2) into the selected cutting height pin hole.
3. With your right foot, release deck lift pedal (#1) slowly to lower deck gently against locking pin.



Deck Lift Pedal
Figure 2-6

When going over obstructions, push deck lift pedal to raise deck up. Go around obstruction if deck will not raise high enough. **Never mow over obstructions you are not certain the deck will clear.**

Engine Starting

The safety start interlock system is designed to prevent runaway or accidental entanglement.

IMPORTANT: The starter motor will engage only if blade engagement switch is **(OFF)**, control levers are **(OUT)**, and park brake is **(ON)**.

The following steps are correct procedures for starting the engine. If difficulty is encountered, contact your local Land Pride dealer.

1. Before starting the engine, make sure:
 - a. Blade engagement switch is **(OFF)**.
 - b. Both control levers are positioned **(OUT)**.
 - c. Park brake is **(ON)**.
2. Set speed control to approximately 1/2 open throttle.

IMPORTANT: Use choke when engine is cold or if warm and engine fails to start after 5 seconds of cranking. Avoid engine flooding by pushing choke control knob to **(OFF)** as soon as possible.

IMPORTANT: The engine starter should not be operated for periods longer than 30 seconds at a time. An interval of at least two minutes should be allowed between such cranking periods to protect the starter from overheating and burn-out.

3. Insert key into ignition switch and rotate clockwise to engage starting motor. Release key when engine starts.
4. Perform test to make sure safety start interlock system is operating properly. Refer to “**Safety Start Interlock System**” on Page 16.
5. As soon as engine begins to run, check to make certain oil warning light is off. If not, stop engine immediately and check for the cause. Refer to “**Troubleshooting**” on page 55.
6. Allow engine to idle a few minutes to warm up before operating the mower.

Engine Shut-Down Sequence

It is always best to go through proper shut-down sequence before turning ignition switch key off. Not following this sequence in the correct order will cause the engine to stop running immediately.

1. Shut blade engagement switch **(OFF)**.
2. Move both control levers to neutral and **(OUT)**.
3. Throttle engine back to a low idle and wait for one minute to allow accumulated raw fuel to escape muffler during engine slow down.
4. Position park brake **(ON)**. (Pull up on lever until it stops.)
5. Rotate ignition key counter-clockwise to **(OFF)**.
6. Remove key from ignition switch.

Safety Start Interlock System

The mower is equipped with a safety start interlock system consisting of blade engagement switch, seat switch, park brake switch, and control lever switches. This system is an important safety feature designed to prevent runaway or accidental entanglement.

IMPORTANT: The starter motor will engage only if blade engagement switch is **(OFF)**, control levers are **(OUT)**, and park brake is **(ON)**.

Only after operator is seated and mower has been started can park brake be moved to **(OFF)** and control levers **(IN)** in that order or the engine will stop running. The blade engagement switch can be pulled **(ON)** only after both control levers are **(IN)**.

Park brake positioned **(ON)** or **(OFF)** does not stop engine when becoming unseated with both control levers **(OUT)** and blade engagement switch **(OFF)**.

The safety start interlock system should be checked daily prior to operation and repaired immediately if it malfunctions. Inspect system as follows:

IMPORTANT: The operator must be on the seat when testing switches. Contact your local Land Pride dealer if the problem cannot be resolved.

1. Start mower engine per instructions in the section on “**Engine Starting**” on page 15. Allow engine to warm up to operating temperature.
2. With blade engagement switch **(OFF)**, control levers spread fully **(OUT)**, and park brake **(ON)**, slowly raise off the seat. The engine should continue to run.

Blade Engagement Switch

1. With engine running and operator sitting on the seat, move park brake to **(OFF)**, pull both control levers **(IN)**, and then turn blade engagement switch **(ON)**.
2. Replace blade engagement switch if blades did not run and no other cause such as damaged wiring can be determined.

Seat Switch

1. With conditions met in step 1 above, slowly raise off the seat. The engine should stop within five seconds.
2. Replace seat safety switch if switch did not operate properly and if no other cause can be determined.

Park Brake Switch

1. Turn blade engagement switch **(OFF)** and move control levers **(OUT)**. Park brake must be **(OFF)**.
2. Try restarting the engine. The starter motor should not turn.
3. Replace park brake switch if starter motor did turn and if no other cause can be determined.

Control Lever Switches

1. With blade engagement switch **(OFF)**, control levers spread fully **(OUT)**, and park brake **(ON)**, restart engine.
2. With park brake **(ON)** and blade engagement switch **(OFF)**, pull right control lever in. The engine should stop within five seconds.
3. Replace right control lever switch if switch failed to operate properly and if no other cause can be determined.
4. Return control arm to original setting and restart engine.
5. With park brake **(ON)** and blade engagement switch **(OFF)**, pull left control lever in. The engine should stop within five seconds.
6. Replace left control lever switch if switch did not operate properly and if no other cause can be determined.
7. Follow “**Engine Shut-Down Sequence**” on page 15 to turn off the mower.

Driving the Mower



DANGER

Never make sudden stops or sudden reversing of travel direction, especially when going down a slope. The steering is designed for sensitive response. Rapid movement of control levers could result in a reaction that can cause serious injury.



DANGER

Never make sudden speed changes from reverse to forward. Always push control levers forward gently to avoid sudden change in speed. Any sudden forward speed change can cause the front wheels to raise off the ground resulting in loss of control, mower damage and/or personal injury.

NOTE: When turning on soft wet turf, keep both wheels rolling either forward or backward. Pivoting on a stopped wheel can damage the turf.

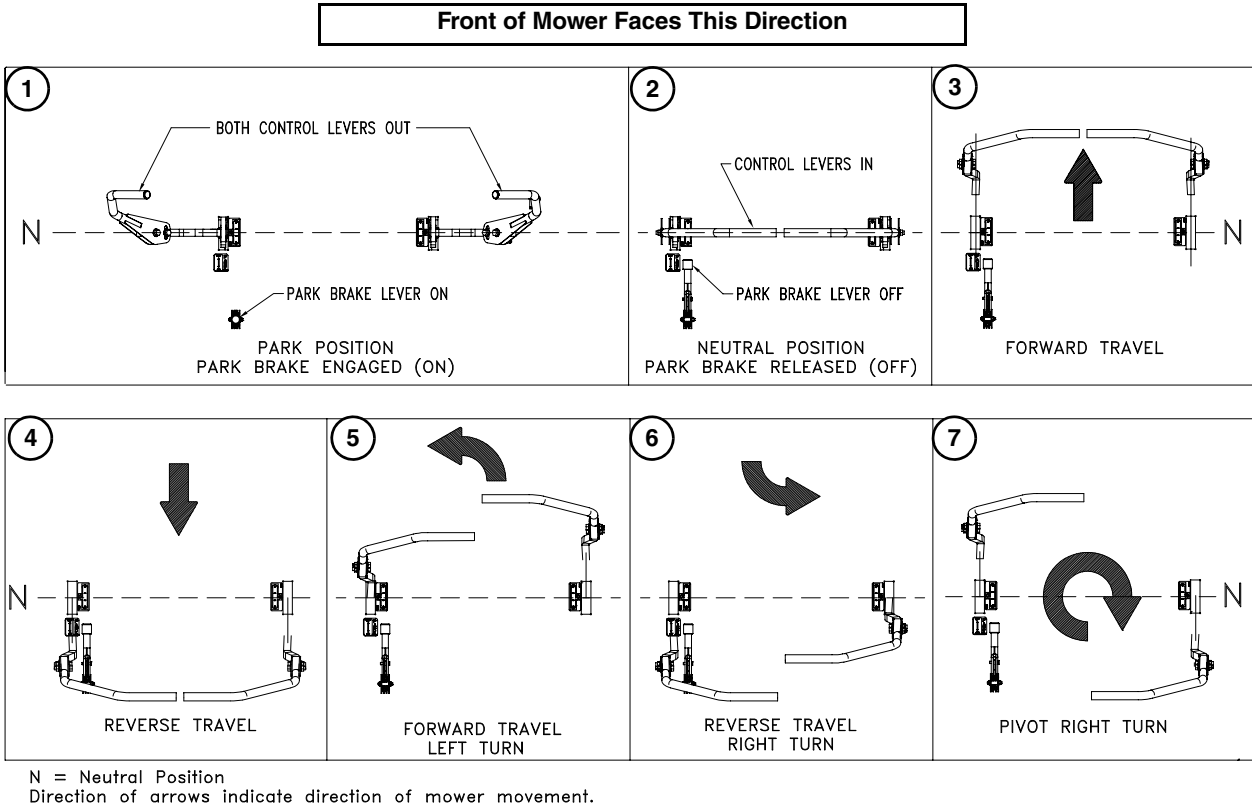
To Start and Increase Speed

Refer to Figure 2-7 on page 17:

After starting the engine, release park brake and engage control levers by moving handles fully **(IN)**. This makes the levers ready for steering while traveling.

Moving control levers an equal distance away from neutral will increase travel speed.

- Start forward travel by gently pushing on the control levers. The further forward the control levers are pushed the faster the travel speed.
- Start backing up by gently pulling on the control levers. The further back the control levers are pulled the faster the travel speed.



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Figure 2-7

To Decrease Speed and Stop



WARNING

In the event of a system shutdown while mowing, move control levers to neutral, and spread them fully apart. Also, engage the park brake lever to aid in slowing and stopping the mower.

Refer to Figure 2-7 on page 17:

Moving control levers an equal distance towards neutral will decrease travel speed.

- When moving forward, pull back gently on control levers to decrease speed. The further back the control levers are pulled the slower the travel speed until neutral is reached.
- When backing up, push forward gently on control levers to decrease speed. The further forward the control levers are pushed the slower the travel speed until neutral is reached.
- Move control levers to neutral to stop. (Ref. Frame #2)
- Spread both control levers fully apart and engage the park brake. (Ref. Frame #1)

To Steer

Refer to Figure 2-7 on page 17:

- To Steer Straight While Traveling Forward (Ref. Frame #3):
Push control levers forward an equal distance.
- To Steer Straight While Backing Up (Ref. Frame #4):
Pull control levers rearward an equal distance.
- To Turn Left While Traveling Forward (Ref. Frame #5):
Move right control lever farther forward from neutral than the left control lever.
- To Turn Left While Backing Up (Ref. Frame #6):
Move right control lever farther back from neutral than the left control lever.
- To Turn Right While Traveling Forward:
Move left control lever farther forward from neutral than the right control lever.
- To Turn Right While Backing Up:
Move left control lever farther back from neutral than the right control lever.
- To Make A Pivot Turn (Ref. Frame #7):
Move one control lever forward and the other control lever back of neutral, this will allow the drive wheels to counter-rotate.

Section 2: Operating Procedures

Accessing Area Beneath the Seat

Refer to Figure 2-8:

The compartment below the seat platform (#1) is where the battery, control lever linkages, hydrostatic drives, belts, and fuses are located. The seat is secured over this compartment with a spring loaded latch. A carriage bolt and nut is attached to the latch to meet safety requirements.



WARNING

The seat pan should always be latched in the down position and secured with bolt and nut before starting mower. Not securing seat pan properly can cause bodily injury.

1. Park unit on a flat level surface. Stop engine and remove ignition key. Make sure blade engagement switch is **in the down (OFF) position**. Spread control levers fully apart.
2. Remove hex flange nut (#4) and carriage bolt (#3) from seat release latch (#2).
3. Pull latch arm (#2) to the left & lift seat platform (#1) up to raise seat up and view compartment below.
4. When ready to close seat platform, lower platform down until latch arm catches on the seat platform. Insert 1/4" carriage bolt in the latch arm and secure with hex flange nut (#4). See Seat Adjustment on page 24 for positioning seat forward and rearward.

Moving Mower with Stalled Engine

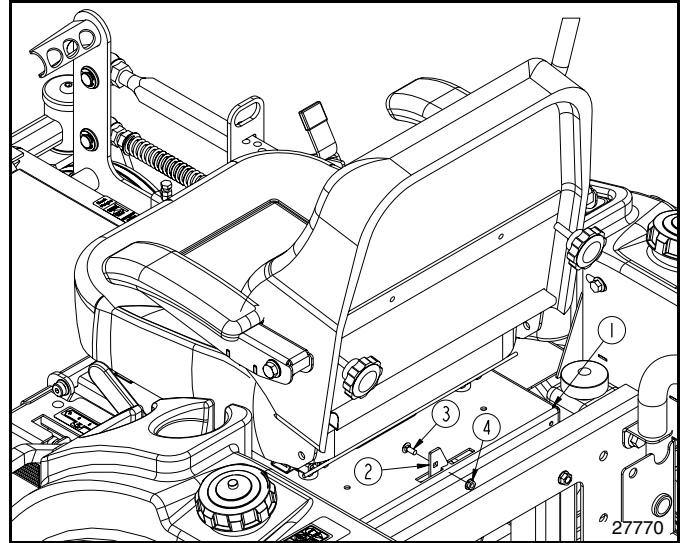
Refer to Figure 2-9:

Each hydro-drive is equipped with a bypass valve for the purpose of moving the mower when the engine is inoperable. Both bypass valve rods are located at the rear of the engine platform.

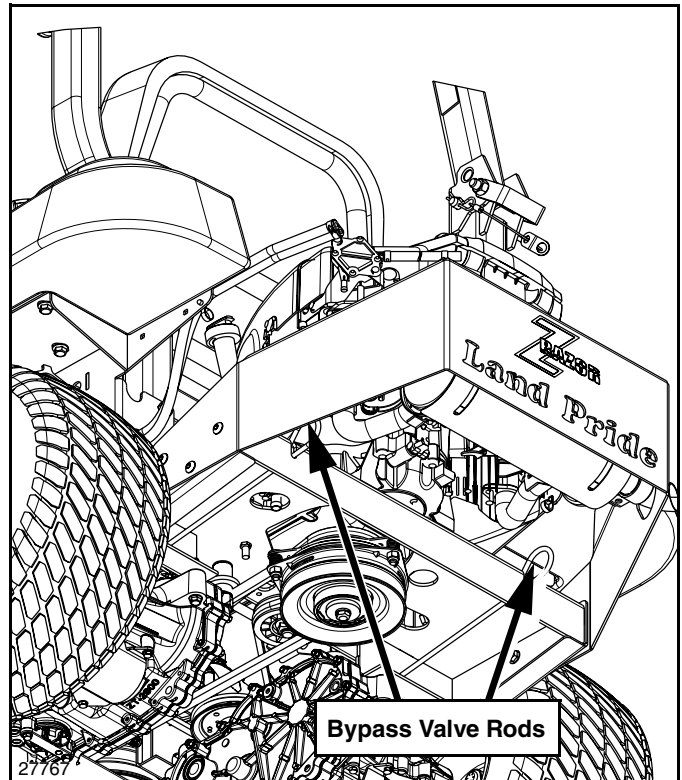
1. Pull back and up on one of the bypass valve rod loop ends. Continue to hold the loop end up against the engine platform while releasing the rod. The upturned ends on the loop should catch on the platform locking the transaxle in free wheeling.
2. Repeat step 1 for the other bypass valve rod and transaxle.
3. Position both control levers in neutral with handles fully apart.
4. Release park brake lever.
5. Manually move mower by hand or with a winch.

IMPORTANT: Do not tow mower. Move it by hand or use a winch and load it onto a trailer. Make certain mower is properly secured to the trailer and its park brake is locked.

IMPORTANT: Following repairs, always make certain the two bypass valve rods are returned to their operating position.



Seat Release Latch
(Engine Not Shown For clarity)
Figure 2-8



Bypass Valve Rods (Operating Position Shown)
Figure 2-9

Section 2: Operating Procedures

Safe Operating Instructions

The safe operation of any machinery is a big concern to all consumers. Your Zero Turn Riding Mower has been designed with many built-in safety features. However, no one should operate this mower before carefully reading this Operator's Manual and all safety decal instructions.

DANGER

Prior to operating the mower, the operator should be thoroughly familiar with proper use and operation of the machine, should read the manual completely and thoroughly, and should have attempted slow moving maneuvers to become familiar with the operation of the machine before attempting normal speed operation. An inexperienced operator should not mow on slopes or on uneven terrain.

DANGER

All guards including floor pan and seat platform must be installed and in good condition at all times during operation.

DANGER

Always use seat belt with the Roll Over Protection System (ROPS). The ROPS can offer protection to the operator in a rollover situation only if that person is contained within the ROPS perimeter. Not using the seat belt in a rollover situation can throw the operator from the mower causing serious injury or death.

DANGER

Never place hands or feet under the deck or attempt to make any adjustments to the mower deck while the engine is running or when blades are engaged. Mower blades rotating at a high speed cannot be seen and are located very close to the deck housing. Fingers and toes can be cut off instantly.

DANGER

Do not mow with people present in the mowing area. Projectiles can suddenly, without warning, discharge from under the mower deck causing serious injury or death.

DANGER

Never direct discharge of material from mower deck towards people, animals or buildings. Keep discharge chute in its lowest position and never remove discharge chute unless a complete grass collection system is in place. Projectiles can suddenly, without warning, discharge from under the mower deck causing serious injury or death.

WARNING

Mower deck and floor pan can be slippery when wet. Always step on anti-slip pads when possible. Never hurry. Always make sure your footing and hand hold is secure when climbing onto the mower to be seated.

WARNING

The tailpipe and muffler are very hot and can ignite dry grasses, brush and other flammable materials. Always keep area around muffler and tailpipe clear of debris. Allow muffler and tail pipe to cool completely before removing any debris to prevent severe burns to the body. Make sure all debris around the muffler have been removed before parking mower inside a building or garage.

WARNING

Always wear hearing protection, safety glasses, clothing that does not hang loosely, and shoes or boots when operating this machine. All shirts should be buttoned up the front and tucked in the trousers, long sleeve shirts should be buttoned at the cuffs. Some conditions may warrant extra safety gear be worn such as dust masks for dust inhalation and safety helmets.

CAUTION

Always check area to be mowed for rocks and other debris before mowing.

- ▲ Be familiar with all functions of this mower.
- ▲ Do not operate mower with damaged parts. Repair all damaged and defective parts before putting mower back in to service.
- ▲ Keep all bystanders away from this mower during operation.
- ▲ Do not allow anyone to operate this mower who has not fully read and comprehended this manual and has not been properly trained in its safe operation.
- ▲ Do not allow anyone under 16 years of age to operate this mower.
- ▲ Do not carry riders on the mower or in a cart towed behind the mower. Carrying riders can result in serious injury and/or death to rider and operator.
- ▲ Do not operate mower while drinking or under the influence of alcohol or drugs.
- ▲ Always operate mower at a safe travel speed that will maintain control. Allow time to react to obstacles in the mower's path. Reduce speed on rough, wet, slick or unstable ground. Take care when driving around trees so as not to scrape them. Do not make sudden uncontrolled changes with control levers. Change speed and direction with steady controlled movements of the control levers. Never drive recklessly.
- ▲ Drive Zero Turn Mowers up and down slopes, not across slopes. Use a walk behind mower when mowing across slopes.
- ▲ Do not operate Zero Turn Mowers on slopes greater than 15 degrees. They are heavy and can crush a person if they rollover sideways or flip over backwards.
- ▲ Stay two or more mower widths away from drop-offs such as ditches and retaining walls. Use a walk behind mower or string trimmer close to drop-offs.

Section 2: Operating Procedures

- ▲ Do not drive too close to water. The surface near water is often soft, wet and unstable. The grass can be wet and slippery. Use a walk behind mower or string trimmer when close to water.
- ▲ Be aware of and avoid overhead hazards such as guy wires, tree limbs and brush that have the potential of stopping the mower or hitting and/or poking one while riding the mower. Mark any potential hazards and be alert to their presence.
- ▲ Thoroughly inspect area to be mowed for unforeseen hazards in the grass such as rocks and other debris. Mark potential hazards that cannot be removed and be alert to their presence.
- ▲ Always operate mower with belt guards installed. Do not operate mower with floor pan removed exposing pulleys and belts.
- ▲ Always wear long pants, ear plugs, safety glasses and safety shoes for personal protection. Some conditions may warrant extra safety gear be worn such as dust masks and safety helmets.
- ▲ Keep hands, feet, long hair, clothing, and jewelry away from moving parts and obvious pinch points to avoid entanglement. Clothing should be snug-fitting, buttoned and tucked in the trousers.
- ▲ Use extreme caution when driving through dry grass, brush and other fire hazard materials. Never stop or park over combustible materials. Keep grass and brush from collecting on and around engine and muffler parts.
- ▲ Use extreme caution when cresting hills or when visibility is limited. Proceed slowly until you are sure conditions immediately ahead are safe.
- ▲ Do not operate mower at night. With poor visibility, night operation can lead to a serious accident.
- ▲ Do not operate mower on streets, highways, public roads, or where it may be a hazard to faster moving traffic.
- ▲ Always park on level ground with control levers fully apart in neutral, park brake set, engine shut off, and switch key removed before leaving mower unattended.
- ▲ Do not touch engine, engine exhaust pipe and/or muffler while they are hot.
- ▲ Battery fumes are explosive. A spark will ignite battery fumes. Wear a face shield when charging or jumping a battery. Follow all battery safety rules in this manual.
- ▲ Avoid battery acid spills. Do not get battery acid on eyes, face, or other body parts. Flush eyes and other body parts immediately with water for at least 15 minutes if battery acid has gotten on them.
- ▲ Never modify engine RPM or any parts on the mower without authorization. Unauthorized modifications will void warranty to all parts directly and indirectly affected by the modification.

- ▲ Do not leave mower unattended with engine running.
- ▲ Do not pull a trailer or implement exceeding a gross weight of 300 pounds and 50 pounds tongue weight. Loss of control may result. Do not make turns so sharp as to cause trailer or implement being towed to come in contact with the mower. Damage may result.
- ▲ Do not attach an implement, trailer, or other device to the hitch that will produce negative tongue weight.
- ▲ Do not push other equipment with front of mower.
- ▲ Do not tow mower with its wheels on the ground. Always tow mower loaded on a trailer. Make certain the mower is properly secured to the trailer and its park brake is locked.
- ▲ Do not smoke or use electrical devices including cell phones while refueling.
- ▲ When refueling use a UL listed container that has a screen or filter. Set container on the ground before fueling to eliminate static discharge. Do not use Methanol fuel.
- ▲ Always maintain proper tire inflation. See “**Tire Inflation Chart**” on page 57.
- ▲ Always disconnect negative battery terminal before making adjustments to the mower’s electrical system or welding on the mower.
- ▲ Support this mower securely before working beneath. Chock wheels to prevent mower from rolling.
- ▲ Always check wheel lug nut torque values two hours after initial operation and two hours after each tire repair and/or replacement. Routinely check lug nut torque valves every 50 hours of operation. See also “**Torque Requirements**” on page 34.

Engage blades with engine running at medium speed. Pull up on blade engagement switch to start blades turning. (Refer to Figure 2-2 on page 13). Once blades are fully engaged and turning, increase engine speed to maximum engine operating speed.

NOTE: Engaging blades when under heavy load (i.e. tall grass) or at high engine rpm can cause premature belt wear and/or belt damage.

Cut grass with blades operating at full speed. Your Zero Turn Riding Mower operates at peak mowing performance and gives the best cut when the throttle is set at full rpm. This gives maximum power to the drive wheels and cutting blades when needed. Use control levers to control ground speed rather than engine rpm.

The mower’s control levers are very responsive. For smooth operation, move levers slowly, avoid sudden movement. Skill and ease of operation come with practice and experience. Inexperienced operators may have a tendency to over-steer and lose control. Slow-moving practice maneuvers are recommended to become familiar with these characteristics before attempting normal speed operation.

Section 2: Operating Procedures

Sharp depressions or raised obstacles (such as gutters or curbs) should not be directly approached at high speed in an attempt to jump them as the operator could be thrown from the mower. Approach at a slow speed and angle one drive wheel at the obstruction. Continue at an angle until both wheels clear the obstruction.

When turning on soft wet turf, keep both wheels rolling either forward or backward. Pivoting on a stopped wheel can damage the turf.

Select a mowing pattern that discharges cut grass away from uncut grass. Generally, this means using a pattern utilizing left turns because the mower discharges cut grass to the right. In any case, avoid discharging cut grass onto uncut grass to avoid cutting the grass twice. Mowing twice puts an unnecessary load on the mower and reduces mowing efficiency.

Keep blades sharp. Many problems with incorrect cutting patterns are due to dull blades or blades which have been sharpened incorrectly. Information on sharpening blades is listed in this manual's maintenance section. In addition, most communities have individuals or companies which specialize in sharpening mower blades. Blade sharpness should be checked daily.

General Operating Information

After thoroughly familiarizing yourself with the Operator's Manual and completing the Operator's Checklist, you are almost ready to begin mowing.

You may want to put the front axle in float mode which will significantly smooth out the ride and deliver improved traction capability over uneven ground. The front axle can be quickly put back into rigid mode if you need to keep the deck up when doing overhanging cuts along curbs or other landscape obstacles.

Approach the mower from the front and spread the steering levers fully apart. Stand just to the outside rear of the left front anti-scalp wheel and with your right hand grab the left side steering lever for support. Taking care not to slip on the mower deck, step up onto the operator's platform and comfortably seat yourself. The park brake lever just to your left and adjacent to the operator's seat should be fully raised and in the (ON) position. With both steering levers still wide apart now reach for the throttle and choke control to your right side. Position the throttle control at half throttle and pull the choke to the "up/on" position. Insert your ignition key and rotate the ignition key clockwise until you hear the engine begin to start. Release the ignition key and push the choke to "down/off" position. Allow the engine to warm up momentarily. If your mower has just been running and the engine is already warm, using the choke is probably not necessary.

With the engine at half throttle, release the parking brake by pushing the lever forward and down all the way. Then reach forward and bring both steering levers equally together in the neutral position just in front of you. It's now time to test your steering skills. Gently push both steering

levers equally forward. The farther forward you push the levers the faster you will go. Pull back equally and you will slow down coming to a stop when you reach the neutral position. Now slowly pull the levers back toward your body past neutral position. The mower will reverse direction and increase in speed as you pull further back. If you push one lever forward and pull one lever back the mower will do a zero turn in the direction of the steering lever closest to your body. Now take a few moments in a safe open area to practice maneuvering and steering your mower with the engine still at half throttle. Gradually increase your throttle speed until you feel totally confident of your mower steering and handling ability around obstacles and in tight areas.

It's now time to cut the grass. Hopefully, you have already removed any obstacles from the lawn that you do not want run over. With your mower at half throttle, place your right foot on the deck lift pedal and release and lower the deck to your preset cutting height. With your right hand, pull up on the cutting blade engagement knob and increase the engine speed to full throttle. You may now begin mowing. When you are done mowing or just want to take a break, make sure you do all of the following.

- Park on level ground if possible.
- Disengage the cutting blades.
- Throttle back.
- Place steering levers in wide-open neutral position.
- Engage park brake lever.
- Turn engine off and remove switch key.
- Step carefully off the left front corner of the operator's platform.
- You may want to chock the wheels as an added measure of safety, if and when you must park on an incline.

In the unlikely event that you lose electrical power and the Riding Mower shuts completely down, you will lose hydrostatic steering capability. Should the engine fail for any reason and you need to push or pull the unit a short distance for loading or servicing, make sure you open bypass valves on the pumps using the bypass valve rods.

The Z48, Z54, ZSR54 and ZSR60 Land Pride Zero Turn Riding Mowers are designed to deliver professional cutting quality, while delivering high productivity and sustained comfort over extended periods of operation. With just a little bit of practice you should become very good at operating your mower. See the "**Features and Benefits**" section of this manual for additional product information and performance enhancing options.

Section 3: Adjustments

WARNING

Unless specifically required, **Do Not** have engine running when servicing or making adjustments to the mower. Place both control levers in the park position and remove ignition switch key. Read and observe all “**Safety Warnings**” and “**Important Notes**” in this manual.

Repairs or maintenance requiring engine power should be performed by trained personnel only. To prevent carbon monoxide poisoning, be sure proper ventilation is available when engine must be operated in an enclosed area.

Your Zero Turn Riding Mower was checked for proper operation and adjusted before it left the factory. However, break-in wear and continued use can cause some adjustments to change.

- Be alert for unusual noises while operating the mower. They could be signaling a problem.
- Visually inspect for abnormal wear or damage while servicing and making adjustments to the mower.

Proper servicing and adjustments are key to the long life of any implement. With careful inspection and routine maintenance, you can avoid costly downtime and repair.

WARNING

Keep your mower clean. Remove heavy trash and clippings from mower. Keep all moving parts, hydraulic system, engine cooling system, and exhaust system clean of trash and clippings. Accumulation of trash and/or clippings can cause fires, hydraulic overheating and excessive belt wear.

Clear away heavy build-up of grease, oil, and dirt. Especially clean in the areas around oil openings, fuel openings, and air inlets. Minute dust particles are abrasive to close-tolerance engine and hydraulic components.

Some repairs require the assistance of a trained service mechanic and should not be attempted by unskilled personnel. Consult your Land Pride service center when assistance is needed.

Torque Requirements

Refer to “**Torque Values Chart**” on page 57 to determine correct torque values when tightening hardware. See “**Additional Torque Values**” at bottom of chart for exceptions to standard torque values.

Tire Pressure

Before considering any adjustment, check tire air pressure. Unequal tire pressure will cause mower to drift to one side. Refer to “**Tire Inflation Chart**” on page 57.

Front Floating Axle

Refer to Figure 3-1:

The front axle will pivot. Simply lock the axle in place with locking pins (#1 & #2) to keep the axle from pivoting or unlock the axle to allow the axle and front wheels to float with the contour of the ground.

WARNING

Make sure blade engagement switch is (OFF), switch key is (OFF) and removed from ignition switch, control levers are (OUT), and park brake is (ON) before making adjustments.

WARNING

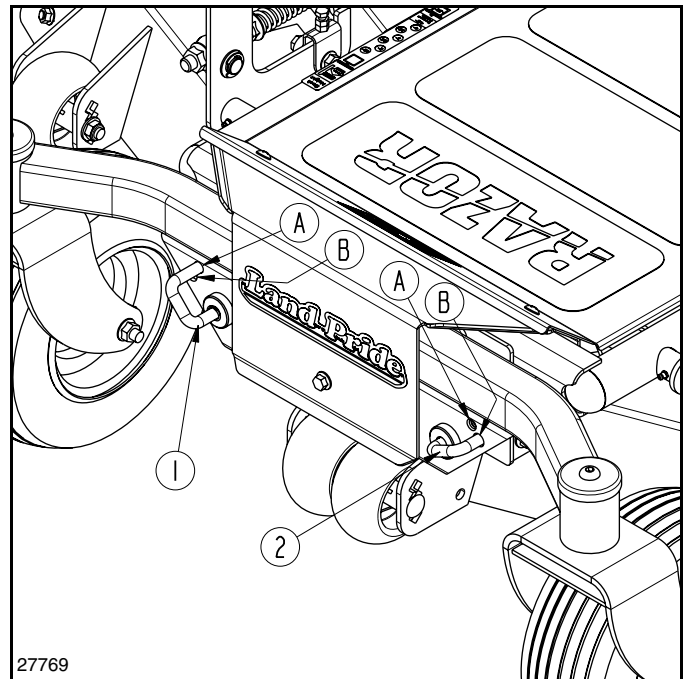
Lock front axle before lifting mower front. Body extremities can easily become pinched while lifting mower front if axle is not locked.

Lock Front Axle

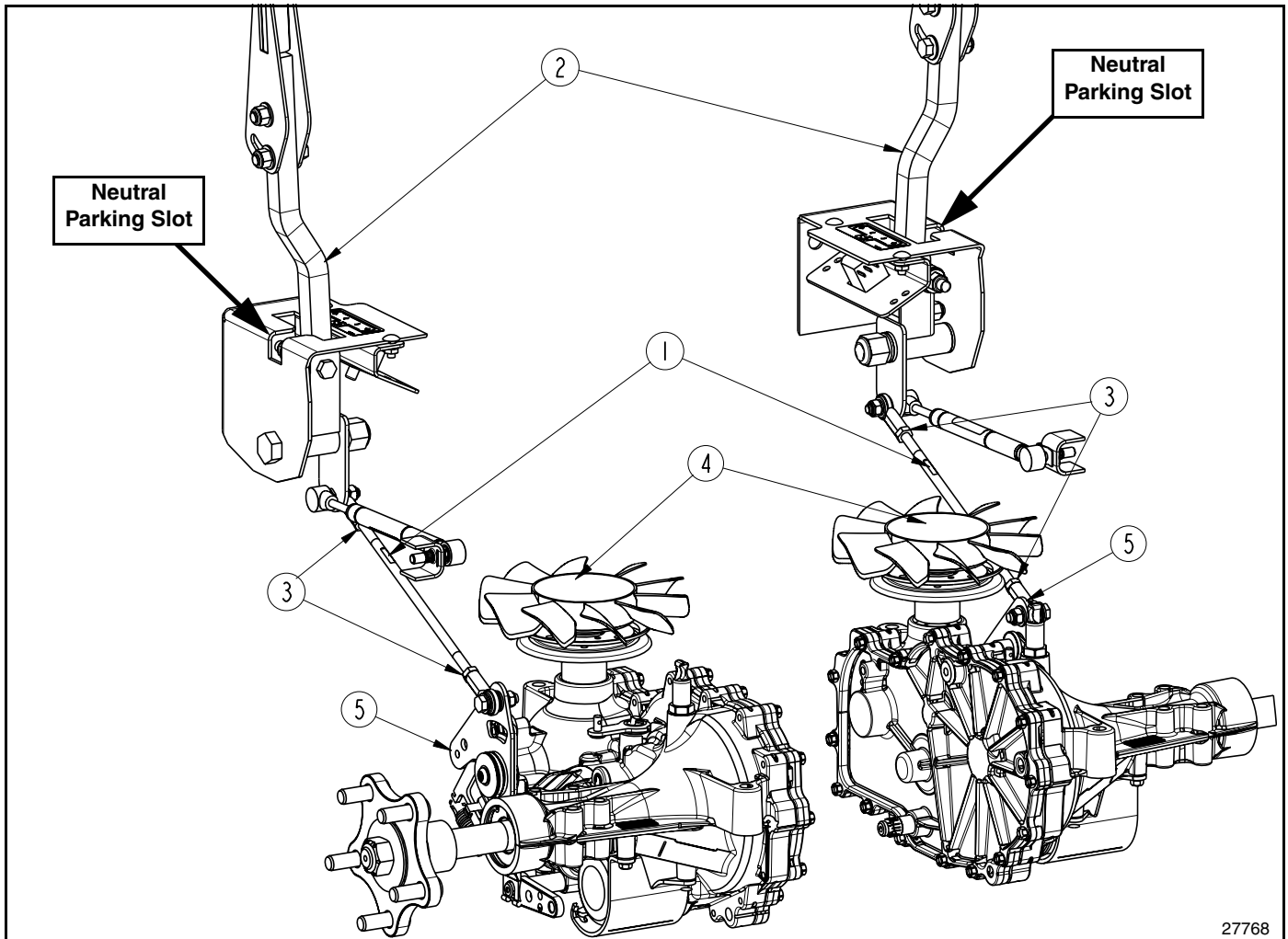
1. Pull locking pins (#1 & #2) out of holes (A) and rotate pins down to holes (B).
2. If spring loaded pins do not fully engage, they will automatically engage when front end pivots into proper alignment. This will happen during operation.

Unlock Front Axle Pivot

1. Park all four wheels on a flat level surface.
2. Pull locking pins (#1 & #2) out of holes (B) and rotate pins to locate in holes (A).



Pivot Locking Device
Figure 3-1



Steering Control Linkage
Figure 3-2

Steering Adjustments

The steering levers on the mower may over time require readjusting. Some adjustments can be made now to make operating the mower more comfortable.

Lower Control Lever

Refer to Figure 3-2:

The hydrostatic drive system is designed with spring return pump arms (#5) that will return the lower steering control levers (#2) to neutral when released. If control levers do not return to neutral position when released, adjust length of pump linkage rods (#1) as follows:



WARNING

Make sure mower is turned (OFF) before making adjustments to pump linkage rods.

1. Disengage blade switch and turn ignition switch off.
2. Position control levers in neutral position as shown.

NOTE: Step 3 is not required but may be done if transaxle fan blades (#4) interfere with loosening jam nuts (#3).

3. Remove fan mounting hardware and fans (#4) if jam nuts (#3) are not easily accessible.
4. Loosen jam nuts (#3) at both ends of the linkage rods by 5 or more full turns (approximately 1/4").
5. Using the flat area (#1) on the linkage rods, rotate rods to lengthen or shorten them until the levers align with the neutral parking slots.
6. Tighten jam nuts (#3) at both ends to lock linkage rods in place.
7. If the transaxle fans were removed, reinstall them and tighten their hardware to the correct torque.
8. Start mower engine and test control lever alignment by moving the levers forward and backward before returning them to neutral position. The pump linkage rods are properly adjusted if the lower control levers are aligned with the neutral parking slots when released.

Section 3: Adjustments

Upper Control Lever

IMPORTANT: Make sure lower control levers have been adjusted before adjusting upper control levers. See page 23 for lower control lever adjustments.

The upper control levers may be adjusted while in neutral position for height, reach, and forward travel to fit the operator's steering comfort zone.

Height Adjustment

Refer to Figure 3-3:

1. Adjust upper control levers (#1) vertically by removing bolts (#3), flat washers (#4), and locknuts (#5) that attach upper control levers (#1) to the lower control levers (#2).
2. Reposition upper control levers to a height that fits the operator's personal preference.
3. Reassemble bolts, flat washers, and locknuts in the same order they were removed without tightening them.

Reach Adjustment

Refer to Figure 3-3:

The upper control levers (#1) can be adjusted forward or rearward to make steering more comfortable.

NOTE: Adjust the seat to operate the deck pedal comfortably before making the "**Reach Adjustment**". See "**Seat Adjustment**" on this page for instructions.

1. Loosen mounting bolts (#3) and pivot upper control levers (#1) forward or backward to fit operator's personal reach preference. Skip to step 3 if reach is satisfactory.
2. If reach comfort zone can not be achieved, then try switching the right upper control lever with the left upper control lever as follows:
 - a. Remove bolts (#3), flat washers (#4), and locknuts (#5).
 - b. Switch right control lever with left control lever and reassemble bolts, flat washers, and locknuts in the same order they were removed without tightening them.
 - c. Pivot upper control levers forward or backward to fit operator's personal reach preference.
3. Verify that the control levers align with each other when in neutral and then tighten bolts (#3) to the correct torque.

Forward Travel Adjustment

Refer to Figure 3-3:

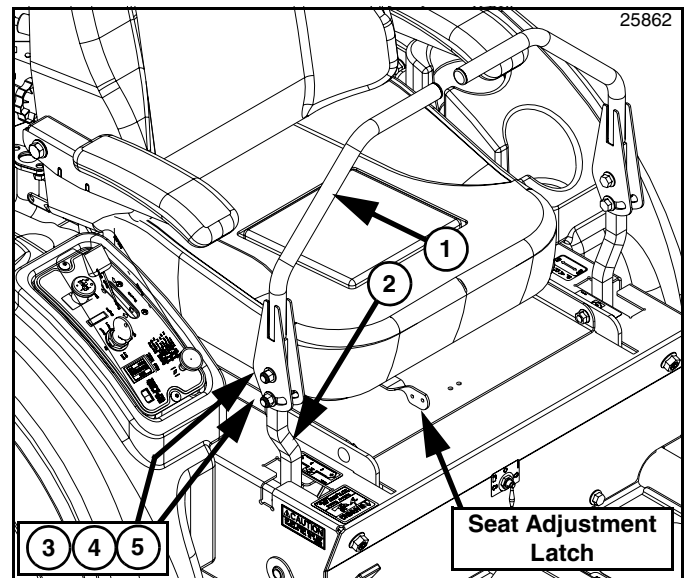
"**Reach Adjustment**" instructions adjust the upper control levers to be equally aligned while in neutral. However, with this adjustment, the mower may want to steer slightly to the right or left when pushing the levers equally forward.

Make the following adjustments if you prefer to have the upper control levers equally aligned while in forward travel position instead of neutral position:

1. While driving forward, make the necessary steering correction required to make the unit go straight and take careful notice of how the upper control levers are positioned. (The distance one lever is ahead of the other to make the mower travel straight.)
2. Stop the mower on a level surface, place control levers in neutral, set park brake (**ON**), shut power off, and remove switch key.
3. You can either adjust the trailing lever forward by the distance it was trailing or adjust the leading lever back by the distance it was leading.
 - a. Loosen mounting bolts (#3) on the side to be adjusted.
 - b. Reposition the lever forward or backward by the distance it was trailing or leading.
 - c. Retighten bolts (#3) to the correct torque.

Example:

If the right control lever is one inch ahead of the left control lever, stop the unit and either adjust the right upper control lever back one inch or adjust the left upper control lever forward one inch.



Control Lever Adjustment (Deluxe Seat Shown)
Figure 3-3

Seat Adjustment

Refer to Figure 3-3:

The seat should be adjusted forward or rearward to a comfortable position to operate the deck lift pedal. Move seat adjustment latch (located under the seat) to the left and then move the seat forward or rearward. Once adjusted, return latch to the locked position.

The arm rest can be adjusted up or down to a suitable arm rest height. Turn the knobs located behind the seat to raise or lower the arms.

Section 3: Adjustments

Ground Drive Belt Adjustment

Refer to Figure 3-4:

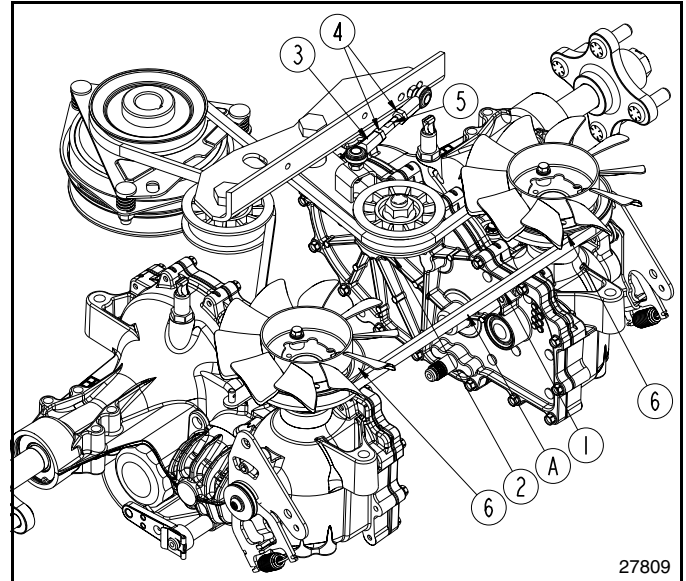
The ground drive belt (#1) is tensioned at the factory and will require readjustment as the belt stretches from wear. Replace belt when it becomes excessively worn or damaged. Instructions for replacing the ground drive belt are provided on page 40.

IMPORTANT: Do not over tension drive belts to compensate for a badly worn belt or pulley.

An over tensioned belt can cause the belt and drive components to break prematurely resulting in a safety hazard to the operator and bystanders.

An under tensioned belt can cause the belt to slip and become damaged.

1. To check tension of drive belt (#1), apply force with a tension tester to the belt mid span (point A between pump pulleys) until the belt deflects 1/4". The force required to get this deflection should range between 7 and 10 lbs.
2. Adjust take-up assembly (#3) until 7 to 10 lbs. of belt tension is achieved:
 - a. Loosen jam nuts (#4) and rotate take-up rod (#5) until drive belt is tensioned properly.
 - b. When adjustment is complete, keep take up rod from turning any farther and retighten jam nuts (#4) to the correct torque.



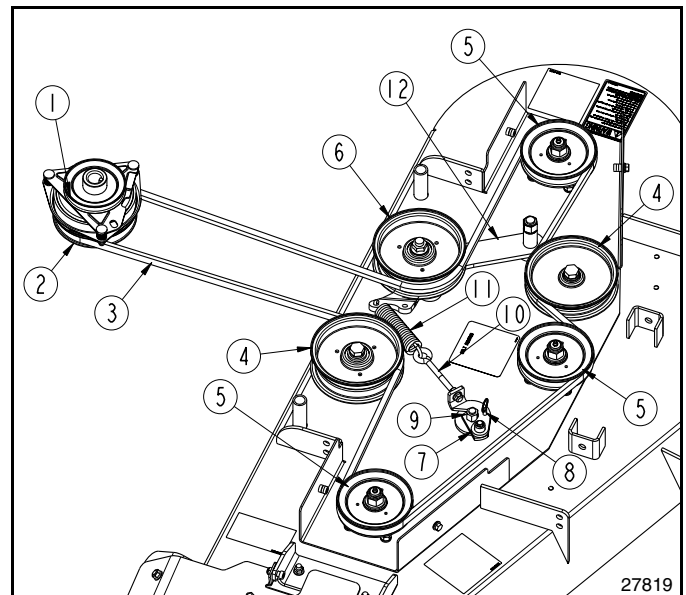
Ground Drive Belt Adjustment
Figure 3-4

Deck Drive Belt Adjustment

Refer to Figure 3-5 & Figure 3-6:

The deck belt (#3) remains in constant tension by means of the spring tensioned idler (#6). If belt slips under normal operating load conditions, retention spring (#11) by tightening up eyebolt (#10). Replace deck belt when it becomes excessively worn or damaged. Instructions for replacing the deck drive belt are provided on page 40.

With deck height set at 3", check length of deck drive extension spring (#11) to verify if belt tension is correct. Installed spring length should be 4 3/4" +/- 1/8" (See Figure 3-6). Vary spring length by adjusting length of eye bolt (#10). Additional adjustments to the spring length can be made by changing which hole in Arm (#12) the spring is attached. There are 2 holes for this adjustment.

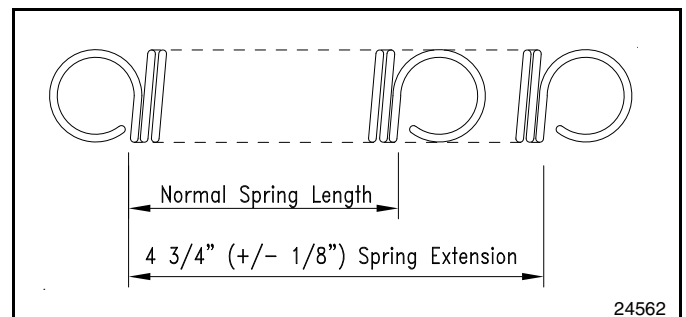


Deck Drive Belt Adjustment
Figure 3-5

IMPORTANT: Do not over tension drive belts to compensate for a badly worn belt or pulley.

IMPORTANT: Excessive belt tension may lead to premature damage of belt and drive components and is also a safety hazard to the operator and bystanders.

Not enough belt tension may lead to premature belt damage due to excessive belt slippage.



Deck Drive Belt Adjustment
Figure 3-6

Deck Adjustments

The mower deck has three areas that may need to be checked occasionally and adjusted when needed.

- Deck Cutting Height And Leveling
- Deck Lift Assist Springs
- Anti-Scalp Rollers



WARNING

Make sure blade engagement switch is (OFF), switch key is (OFF) and removed from ignition switch, control levers are (OUT), and park brake is (ON) before making adjustments.

Deck Cutting Height And Leveling

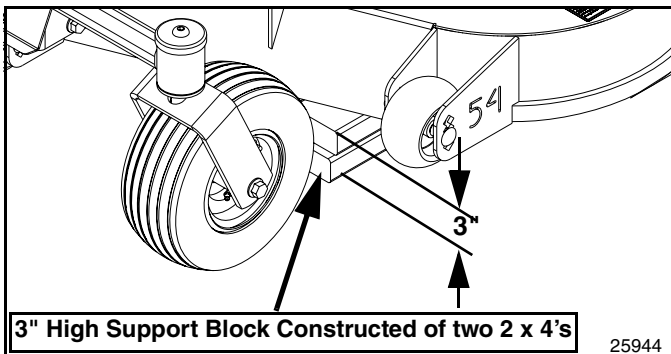
When level, the bottom edge of the deck should be 3" above ground level with deck stop (#1) set at 3 1/4" cutting height. If the deck cutting height is not properly adjusted, readjust deck height as follows:

1. Check tire pressures to make certain they are properly inflated.

NOTE: Refer to "Tire Inflation Chart" on page 57 for correct tire pressures.

Refer to Figure 3-7:

2. Park unit on a flat level surface.
3. Raise deck fully up.
4. Position blade cutting height at 3 1/4" by placing 3" high deck support blocks under the deck edge in three locations. (Two stacked 2" x 4" x 5" or longer boards may be used to make one 3" high block)
 - a. Place one 3" high support block under the deck's front edge in-line with the far left blade spindle.
 - b. Place a second 3" high support block under the deck's front edge in-line with the right blade spindle.
 - c. Center a third 3" high support block under the center of the deck's back edge.
5. Remove deck height adjusting stop (#1) shown in Figure 3-8 on page 27 and lower deck onto the support blocks.



Blade Cutting Height will be 3 1/4"
When Blocking Deck Edge 3" Above Ground Level
Figure 3-7

Refer to Figure 3-8 & Figure 3-9 on page 27:

IMPORTANT: Spring assist trunnion (#12) is factory set and should not require field adjustment.

6. Back 3/4" flange nuts (#7 & #9) four or more turns away from deck lift trunnion (#8).
7. Back 5/8" flange nuts (#18 & #20) four or more turns away from spring assist trunnion (#19).
8. Loosen adjuster jam nuts (#15 & #24) and adjuster yoke whiz nuts (#27 & #28).
9. Loosen adjuster screws (#14 & #23) until adjuster yokes (#16 & #25) can move up and down freely.
10. Set cutting height at 3 1/4" by turning deck stop (#1) around so that its flat side is against stop handle (#2) and then place deck stop into the 3" cutting height hole (#3) in deck height gauge bar (#4) (See deck height indicator (#5) to locate position of 3" hole).
11. Tighten deck lift chains (#30, #26, #29 & #17) in the order provided below:

IMPORTANT: When completed, all lift chains will be tight, the deck will be resting on all 3" support blocks and stop handle will be against the deck stop.

Front Left Lift Chain #30

- a. Adjust flange nut (#7) against trunnion (#8) until lift chain (#30) on the front left side is tight, stop handle (#2) is against deck stop (#1) and deck is still resting on the support blocks.
- b. After flange nut (#7) has been properly adjusted, tighten flange nut (#9) to the proper torque.

Front Right Lift Chain #26

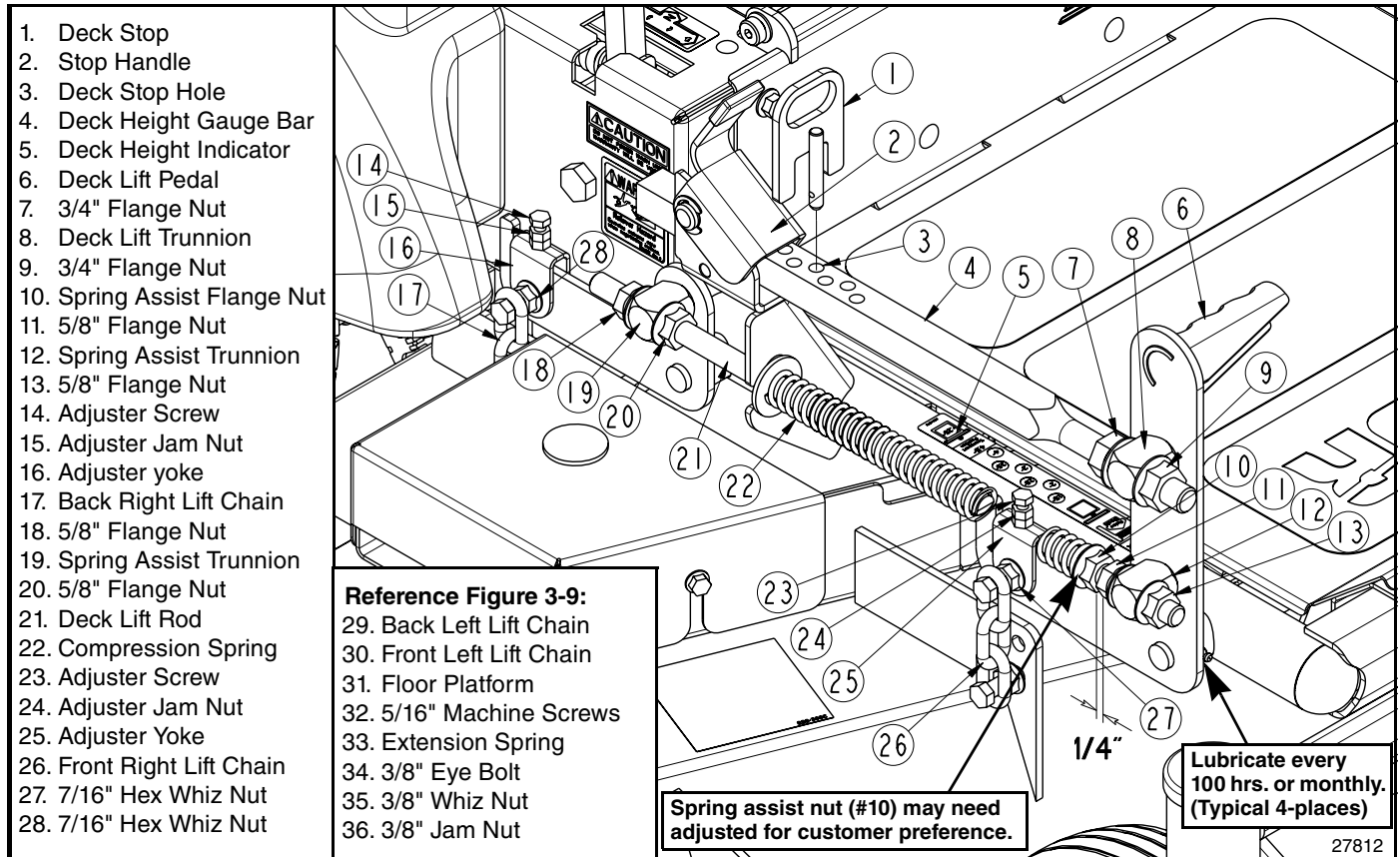
- a. Make sure adjuster yoke (#25) moves freely.
- b. Tighten adjuster screw (#23) until lift chain (#26) on the front right side is tight and the deck is still resting on the support blocks.
- c. Tighten adjuster jam nut (#24) & yoke nuts (#27).

Back Left Lift Chain #29

- a. Adjust flange nut (#18) against spring assist trunnion (#19) until lift chain (#29) on the back left side is tight and the deck is still resting on the support blocks.
- b. After flange nut (#18) has been properly adjusted, tighten flange nut (#20) to the proper torque.

Back Right Lift Chain #17

- a. Make sure adjuster yoke (#16) moves freely.
 - b. Tighten adjuster screw (#14) until lift chain (#17) on the back right side is tight and the deck is resting on the support blocks.
 - c. Tighten adjuster jam nut (#15) & yoke nuts (#28).
12. Raise deck fully up until stop handle (#2) catches on the cross notch in the deck height gauge bar (#4).
 13. Remove support blocks from under the deck.



Deck Adjustment (Right Side Shown)

Figure 3-8

Deck Lift Assist Springs

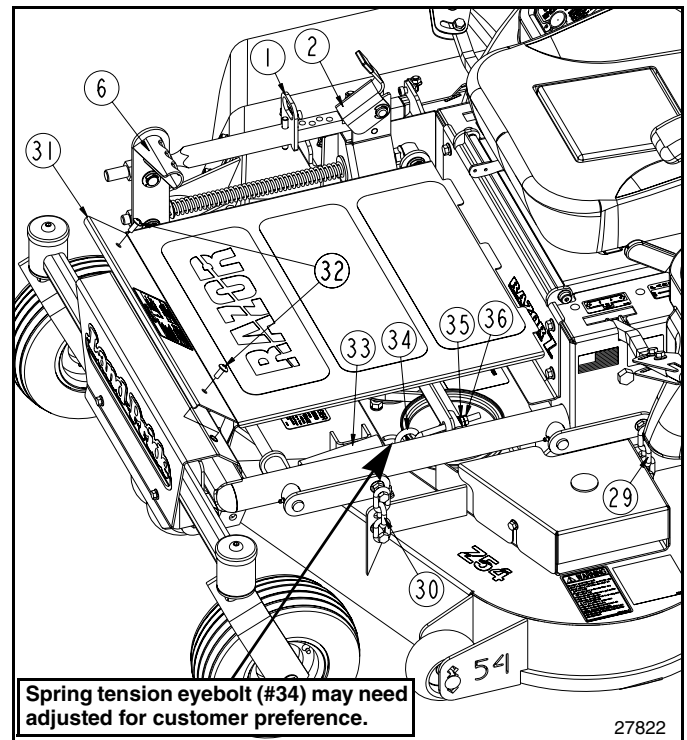
Refer to Figure 3-8:

There are two deck lift assist springs. The right side deck lift compression spring (#22) is factory set with 1/4" space between spring assist flange nut (#10) and flange nut (#11). Spring assist flange nut may require adjustment for customer preference.

Refer to Figure 3-9:

The left side deck lift extension spring (#33) is located under the floor platform (#31) and will require readjustment if the operator cannot easily press down on the deck lift pedal (#6) or if the deck weight won't hold deck stop (#1) against stop handle (#2) while traveling.

1. Lower deck to its lowest mowing position to ensure deck is still tight against the stop handle when the assist spring is in its tightest position.
2. Remove screws (#32) and floor platform (#31).
3. Back jam nut (#36) away from adjusting nut (#35).
4. Turn adjusting nut (#35) clockwise to increase spring tension and to make lifting the deck easier. Turn adjusting nut (#35) counterclockwise to decrease springs tension and to increase deck weight against the stop handle.
5. After adjusting nut (#35) has been properly adjusted, tighten jam nut (#36) against the adjusting nut.
6. Replace floor platform (#31) & tighten screws (#32).



Deck Adjustment (Left Side Shown)

Figure 3-9

Anti-Scalp Rollers

Refer to Figure 3-10:

On the front of the mower deck are four anti-scalp rollers (#6). Their purpose is to minimize scalping the ground when mowing on rough uneven terrain. Their height should be adjusted after setting the deck stop to the preferred cutting height.

1. Position mower and deck on a flat level surface.
2. Set deck to the preferred mowing height. (Refer to “Cutting Height Settings” on this page.)
3. Remove 1/2" hex nylock jam nuts (#4) from all four anti-scalp rollers (#6).
4. Reposition anti-scalp rollers up or down in the roller mounting notches (A) with carriage bolts (#2 & #3) as shown. See important note below.

IMPORTANT: The anti-scalp rollers will extend below blade cutting height the distance shown below when mounted in the following holes:

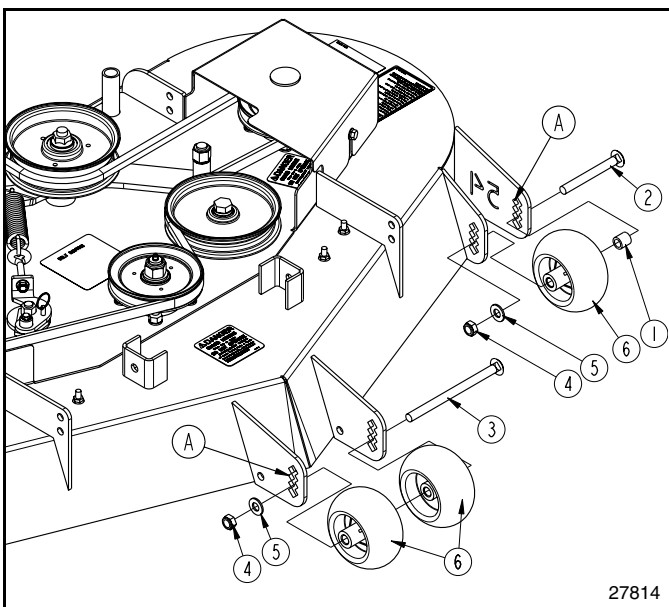
- Top notches: 1/4" below cutting height.
- 2nd notches: 3/4" below cutting height.
- 3rd notches: 1 1/4" below cutting height.
- Bottom notches: 1 3/4" below cutting height.

For protection of deck and blades, it is best if the rollers are mounted in the lowest possible notches without rollers touching the ground.

For example:

If deck cutting height is set at 1", the rollers should be mounted in the 2nd notches down from the top.

5. Secure anti-scalp rollers to the mounting brackets with flat washers (#5) and 1/2"-13 hex nylock nuts (#4). Tighten nuts to the correct torque.



Anti-Scalp Roller Adjustment
Figure 3-10

Cutting Height Settings

Refer to Figure 3-8:

Cutting height is adjustable from 1.5" to 4.5" in 1/4" increments. The holes in the deck height gauge bar (#4) are spaced at 1/2" intervals. By turning the deck stop (#1) around, 1/4" increments can be attained due to the 1/4" plate thickness that is part of the stop.

EXAMPLES:

1. When deck stop (#1) is placed in one of the holes with the 1/4" plate facing forward, the cutting height will be the same as indicated on the deck height indicator:
1 1/2, 2, 2 1/2, 3, 3 1/2, 4, or 4 1/2" (transport position).
2. When deck stop (#1) is placed in one of the holes, with the 1/4" plate facing rearward (against stop handle (#2)), the cutting height will be 1/4" more than the deck height indicator:
1 3/4, 2 1/4, 2 3/4, 3 1/4, 3 3/4, 4 1/4", or 4 1/2" (Transport Position).

The notch located at the rear of the deck height gauge bar (#4) is used when placing the deck in transport position.

Folding Soft Top Canopy

357-194A SOFT TOP CANOPY

Refer to Figure 4-1:

Keep the sun off with this easily assembled, ROPS attached canopy. Made with a lightweight aluminum frame and acrylic coated polyester, you'll be more comfortable during those hot sunny afternoons.



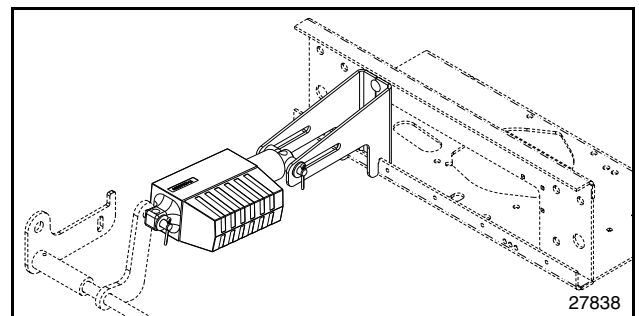
Folding Soft Top Canopy
Figure 4-1

Electric Deck Lift

357-371A ELECTRIC DECK LIFT KIT, RAZOR

Refer to Figure 4-2:

The electric deck lift makes lifting and lowering the deck easier. Simply toggle a switch in one direction to raise the deck and in the other direction to lower the deck. Release toggle switch to stop deck movement.



Electric Deck Lift
Figure 4-2

Mulching Kit

357-364A MULCH KIT, 48" RAZOR

357-361A MULCH KIT, 54" RAZOR

357-358A MULCH KIT, 60" RAZOR

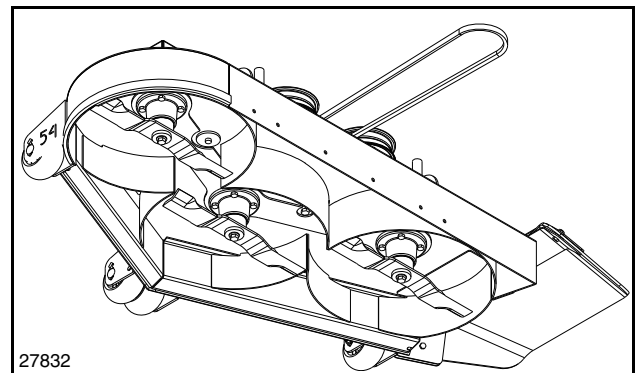
890-991C MULCH MOWER BLADES, 54" RAZOR

890-702C MULCH MOWER BLADES, 60" RAZOR

Refer to Figure 4-3:

Give your lawn that fresh cut grass look without the unsightly grass clippings by installing the Mulching Kit and Mulching Blades (sold separately) on your mower deck.

NOTE: Mulching Kit includes baffles and mounting hardware only.



Mulching Baffles and Blades
Figure 4-3

Light Kit

357-160A LIGHT KIT, Z MOWER

Refer to Figure 4-4:

Make seeing easier when completing a job after sundown and when parking your mower in a dark shed by attaching Land Pride's light kit.



Light Kit
Figure 4-4

Inductive Tachometer

890-909C TACHOMETER, INDUCTIVE

Attaches to the spark plug on single and twin cylinder engines for checking engine speed. Engines operating at optimal speed stay cooler and perform better.

Maintenance

Regular scheduled maintenance is the best prevention for costly downtime and expensive, premature repair. Correct problems as quickly as possible. The following pages contain suggested maintenance information and schedules to follow routinely.

Check initially and periodically for loose bolts and pins. Torque loose bolts per the “**Torque Values Chart**” on page 57. Remain alert for unusual noises, they could be signaling a problem. Visually inspect machine for any abnormal wear or damage. A good time to detect potential problems is while performing scheduled maintenance. Correcting problems as quickly as possible is the best insurance.

Clear away heavy build-up of grease, oil, and dirt, especially around the engine and under the seat platform. Minute dust particles are abrasive to close-tolerance engines and hydraulic assemblies.

Inspect mower daily for grass clippings, tangled wire and string. The underside of the mower deck will collect a build-up of grass clippings and dirt, especially when grass is wet or has high moisture content. This build-up will harden, restricting blade and air movement and will usually produce a poor quality of cutting. Therefore, debris should be routinely removed from under the deck. To do this, it will be necessary to raise and block the deck in the full up position before scrapping build-up from underneath.

Some repairs require the assistance of a trained service mechanic and should not be attempted by unskilled personnel. Consult your Land Pride dealer when assistance is needed.

Maintenance Safety



DANGER

Repairs or maintenance specifically requiring engine power should be performed by trained personnel only. Control levers should be out. If control levers are to be operated, the tires should be properly supported off the floor. Enclosed areas should be properly ventilated to prevent carbon monoxide poisoning.



DANGER

Before working on or under the deck, make certain blade engagement switch has been shut off, deck has been properly blocked up, engine has been shut off, and ignition switch key has been removed for maximum safety.



DANGER

Exercise caution when working under the deck as the mower cutting blades are extremely sharp. Wearing gloves is advisable when working around or with cutting blades.



WARNING

Read and observe all safety warnings in this manual and in the engine service manual.



WARNING

Except when checking or changing components, always keep protective shields on for safety as well as for cleanliness.



WARNING

Keep your machine clean. Remove all deposits of trash and clippings. A dirty machine can cause engine fires and hydraulic overheating as well as excessive belt wear.



WARNING

DO NOT have engine running when servicing or making adjustments to the mower. Shut blade engagement switch off, move both control levers out, set park brake on, shut engine off and remove ignition switch key.



WARNING

When possible, clean under the deck using a stick or similar instrument making sure that no part of the body, especially arms and hands are under the mower.



WARNING

Keep mower properly maintained. Do not make unauthorized modifications. An improperly maintained mower or one that has been improperly modified can be dangerous to operate.



WARNING

Do not operate mower with loose pins, bolts, and nuts. Loose hardware can result in a serious breakdown causing bodily injury or death.



CAUTION

Do not alter Land Pride equipment or replace parts with other brands. Doing so can cause equipment to perform improperly and may lead to breakage that can cause bodily injury. Replace parts only with genuine Land Pride parts.

Maintenance Schedule

Service at Intervals Indicated	Every 25 Hrs	Every 50 Hrs	Every 100 Hrs	Every 200 Hrs	Every 500 Hrs	Refer to Page
Clean mower, Deck & Engine Cooling System	Daily (After engine has cooled.)					
Verify Safety Start Interlock System	Daily (Before each use)					16
Inspect Unit for loose hardware and damage	Daily (Before each use)					30
Visually Inspect Tires	Daily (Before each use)					57
Check Engine Oil Level	Daily (Before each use & every 4 hours thereafter)					44
Clean Air Intake Screen	Daily (Before each use & every 4 hours thereafter)					45
Check Fuel Level	Daily (Before each use)					38
Inspect Fuel System for Leaks	Daily (Before each use)					38
Check Blades - Sharp & Securely Fastened	Daily (Before each use)					42 & 57
Check Discharge Chute - Make sure it is Properly Secured In Place	Daily (Before each use)					
Grease Blade Spindle Bearings	X					48
Change Engine Oil & Filter (1)		X				44
Clean Cylinder And Head Fins		X				
Check Battery Connections		X				11 & 35
Check Tire Pressure With A Gauge		X				57
Clean Engine Exterior (3)		X				
Check hydraulic Oil Level		X				36
Tighten Lug Nuts On Wheels (2)		X				57
Grease Caster Wheel Bearings			X			48
Check Ground And Deck Belt Tension (4)			X			40
Check Hydraulic system (5)			X			38
Change Fuel Filter (3)			X			39
Grease Deck Lift Points (8)			X/M			49
Grease Deck Lift Pivot Points (8)			X/M			49
Replace Spark Plugs(3)				X		
Replace Air Cleaner Paper Element (6)				X		45
Inspect tethered fuel caps (8)					X/A	39
Change Hydraulic Oil & Filter (7) (8)					X/A	36

NOTES:

- Initial engine oil and oil filter change is after the first 5 hours of operation. Thereafter, change engine oil and oil filter every 50 hours of operation. Change every 25 hours when operating the engine under dusty or dirty conditions, heavy load, high temperatures, and hot weather periods. Refer to Engine Owner's Manual.
- Torque lug nuts initially and after first 2 hours of operation.
- Remove cooling shrouds and clean cooling areas. Check oil cooler fins and clean as needed. Refer to Engine Owner's Manual.
- Inspect ground and deck belt tensions every 6 months or 100 hours and replace if worn or cracking is noticed. Otherwise, replace every 200 hours or 2 years whichever comes first.
- Inspect all hydraulic system components for leaks and repair as necessary. Replace any hoses that are cracked or damaged.
- Replace air cleaner filter element if damaged, every 200 hours or every season (whichever comes first). Replace more frequently when used in dusty conditions.
- Initial hydraulic oil and filter change is between 25 and 50 hours of operation.
- X/M = Service per hours indicated in column or monthly (whichever comes first).
X/A = Service per hours indicated in column or annually (whichever comes first).

Maintenance Locations

Your Z riding mower is designed with innovative state-of-the-art components that should be maintained. Knowing the location and how to maintain these components is the best prevention for costly downtime or expensive, premature repair. Become familiar with the components listed below. Most are reviewed in “**Section 3: Adjustments**” and this section.

Refer to Figure 5-1:

1. Pulley Guard
(Guards removed for clarity)
2. Over-Center Belt Tensioner
3. Eye bolt
4. Deck Belt Tensioner Spring
5. Deck Tension Idler
6. Blade Spindle Zerk (3)
(1) Under floor platform
(2) Through opening in pulley guards
7. Belt Pulleys
8. Electric Clutch
9. Deck Belt
10. Anti-Scalp Wheels
11. Discharge Chute

Refer to Figure 5-2:

12. Blade Bolt
13. Blade Washer
14. Cutting Blades
15. Deck Underside

Refer to Figure 5-3:

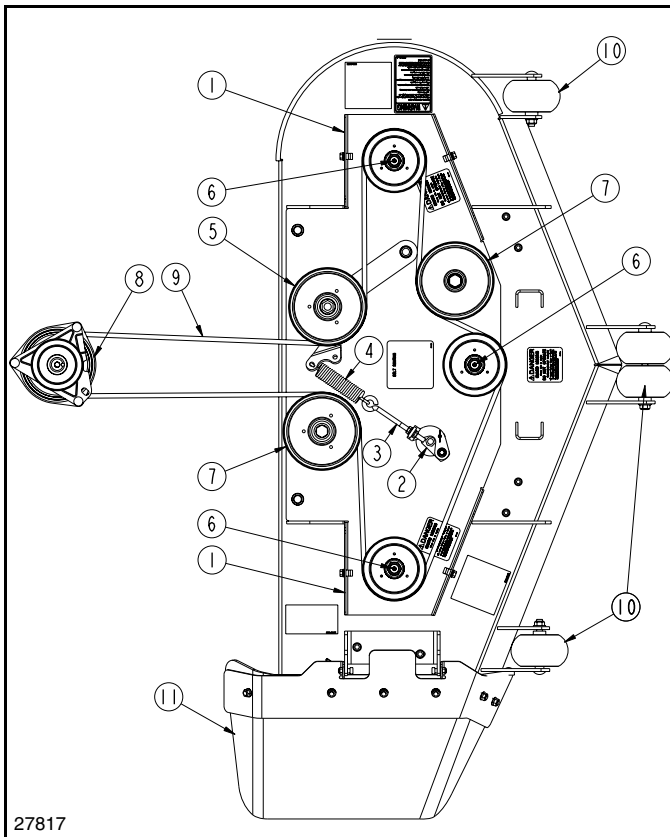
16. Engine Oil Fill & Dipstick (RH side)
17. Engine Oil Drain Plug
(Under oil fill & dipstick.)
18. Engine Oil Filter
19. Engine Air Cleaner
20. Fuel Filter
(Location varies by engine)
21. Seat Release Latch (Not visible.
Located on rear of seat.)
22. Hydraulic Oil Expansion Tank (2)
(For level check and adding oil.)
23. Battery (located under seat)
24. Operator Pressure Switch
(Located under seat.)
25. Park Brake
26. Floor Platform
27. Left/Right Fuel Tank Valve
(Below right arm rest)
28. Seat Adjustment Latch
29. Axle Pivot Locking Pins
30. Fuel Tanks (2)

31. Full Tank Caps (2)

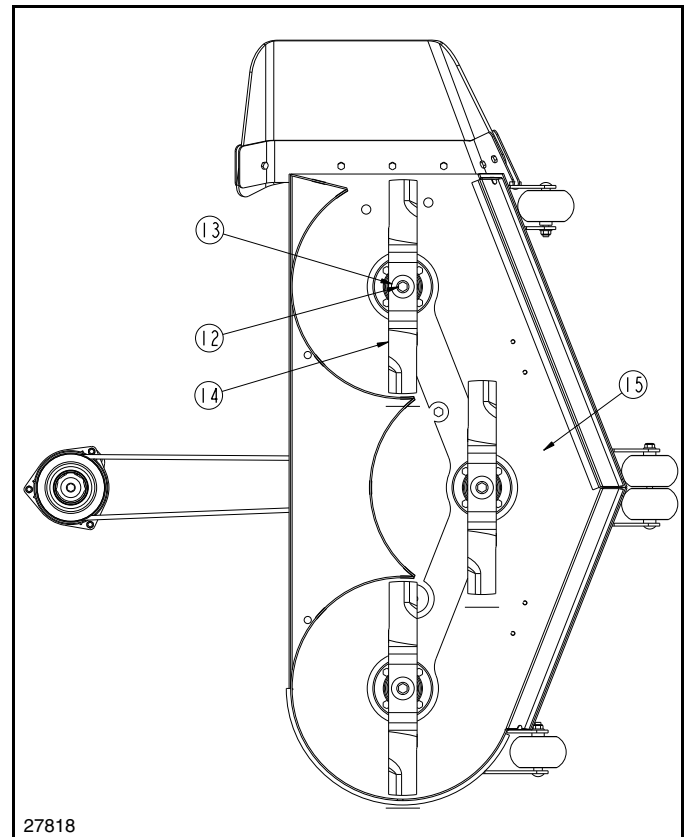
32. Blade Spindle Zerk Access Hole

Refer to Figure 5-4:

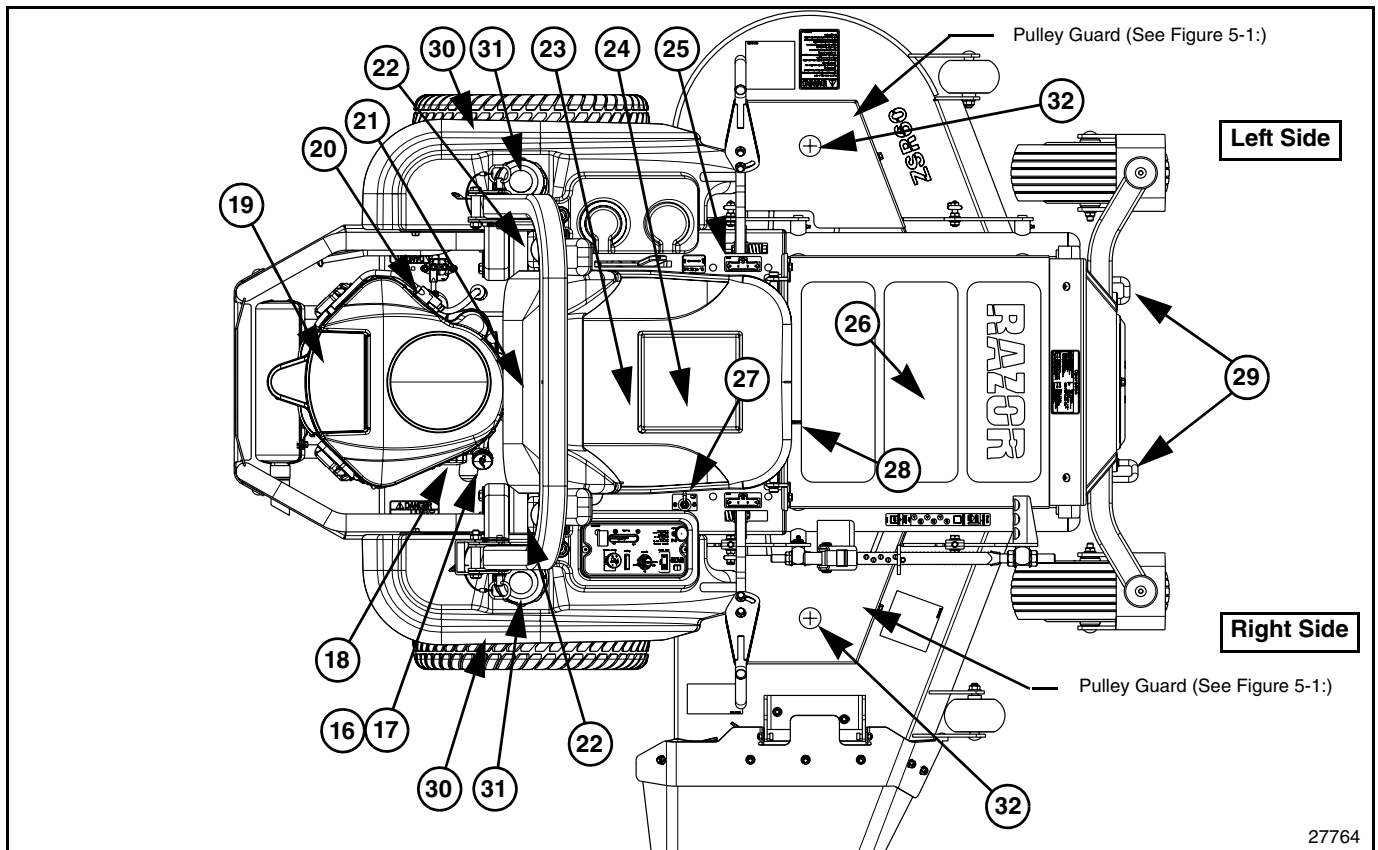
33. Engine Muffler
34. Electric Clutch & Pulleys
35. Ground Drive Belt
36. Ground Belt Take-Up Arm
37. Ground Belt Tension Idler
38. Hydraulic Oil Filters (2)
39. Drive Wheels (2)
40. Deck Lift Grease Zerks (4)
41. Caster Wheel Grease Zerks (2)
42. Caster Wheels (2)
43. Deck Lift Pivot Grease Zerks (2)
44. Electric Clutch Bolt



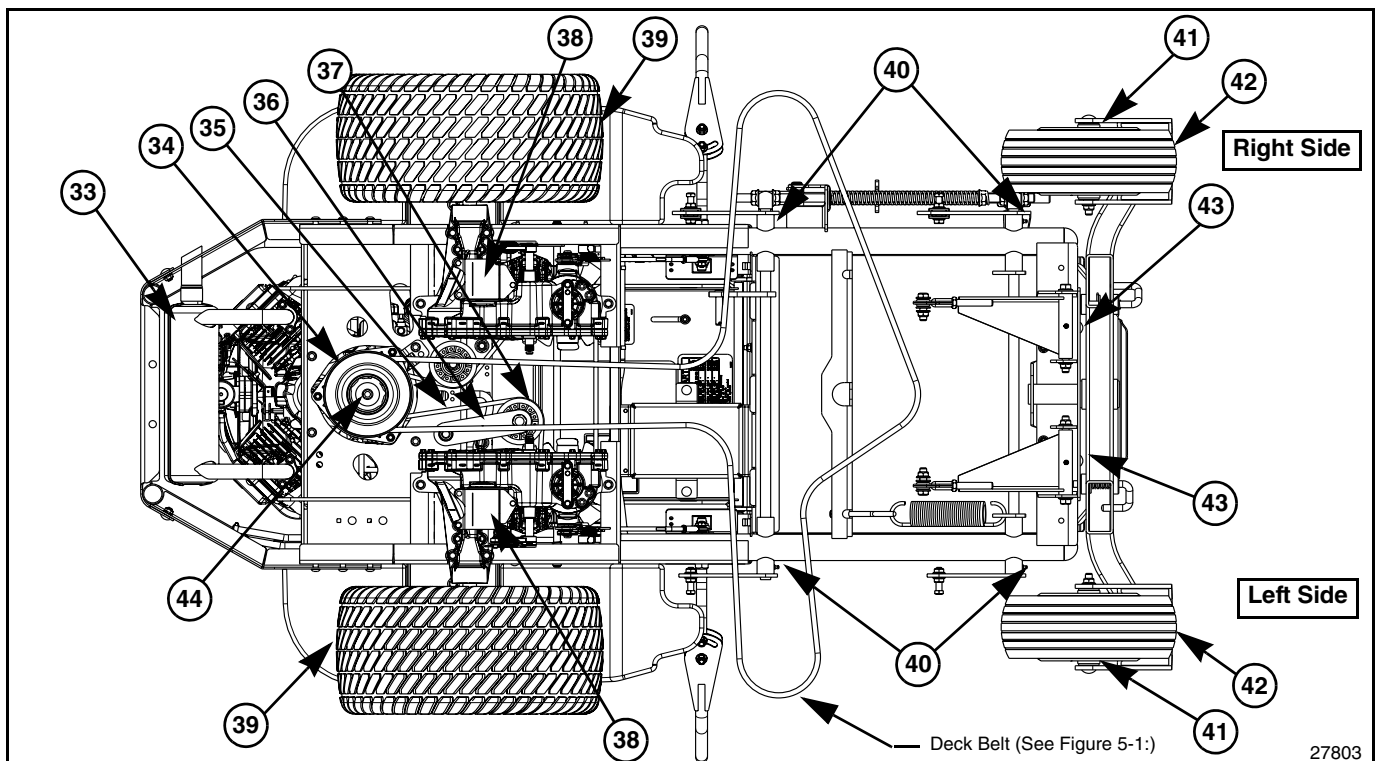
Top View of Deck
Figure 5-1



Bottom view of Deck
Figure 5-2



Top View of Mower (Kawasaki Engine Shown)
Figure 5-3



Bottom view of Mower (Deck Not Shown)
Figure 5-4

Torque Requirements

Refer to “**Torque Values Chart**” on page 57 to determine correct torque values when tightening hardware. See “**Additional Torque Values**” at the bottom of the chart for exceptions to standard torque values.



WARNING

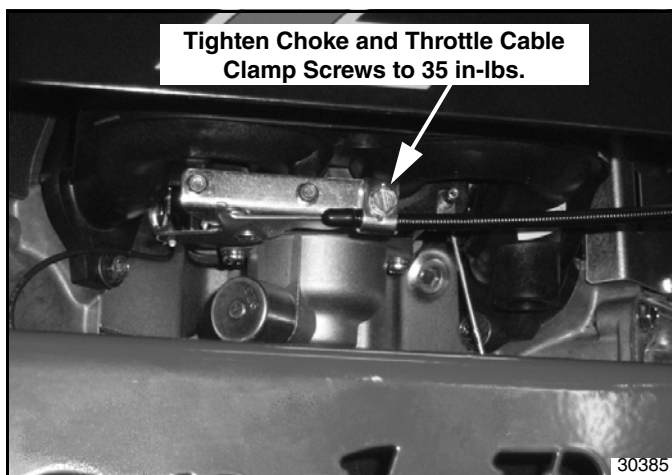
Particular attention must be given to tightening the drive wheel lug nuts, blade spindle bolts, electric clutch bolt and transaxle mounting bolts and nuts. Not torquing these components correctly can result in the loss of a wheel, blade or burnt clutch. Any of the above situations can cause serious damage to the equipment and/or personal injury.

It is recommended that the following be checked after the first 2 hours of initial operation and after removal for repair or replacement. Thereafter, they should be checked every 50 hours of operation.

- Blade bolts (See item (#12) in Figure 5-2 on page 32)
- Electric Clutch bolt (See item (#44) in Figure 5-4 on page 33)
- Wheel lug nuts (See item (#13) in Figure 5-16 on page 41)
- Transaxle mounting bolts (See item (#12) in Figure 5-16 on page 41)

Refer to Figure 5-5:

- Retighten choke and/or throttle cable clamp screws to 35 in-lbs if they work loose or are loosened to make cable adjustments.
- See engine owner’s manual for all other engine torque values.



Choke and Throttle Cable Clamp Screws
Figure 5-5

Tires

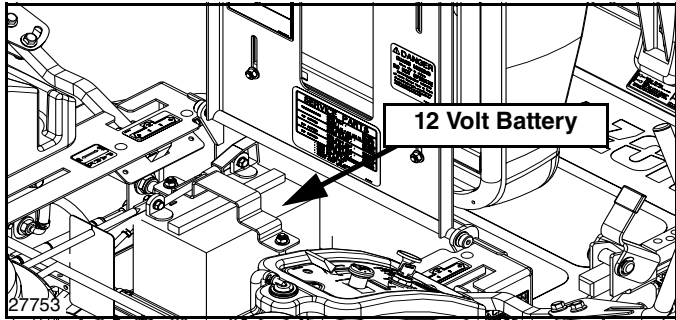
IMPORTANT: Use only tires recommended by Land Pride. Solid fill tires are not to be used on Zero Turn Mowers.

It is important for your safety and the safety of others that the tires have correct air pressure. Check air pressure in all four tires before each use. Visually inspect tires for loss of air throughout each day of operation. See “**Tire Inflation Chart**” on page 57 for correct tire pressure.

Electrical System

Refer to Figure 5-6:

The mower is equipped with a 12 volt negative ground electrical system powered by a battery located under the seat. When worn out, replace it with a maintenance-free garden mower 12 volt BCI group UL1HD with 245 cold cranking amps (CCA) or U1L-X with 300 CCA. Follow manufacturer's maintenance, safety, storing, and charging specifications.



Battery
Figure 5-6

WARNING

Incorrect battery cable connections can damage the mower's electrical system and cause battery cables to spark. Sparks around a battery can result in a battery gas explosion and personal injury.

- Always disconnect negative (black) cable from battery before disconnecting positive (red) cable.
- Always reconnect positive (red) cable to the battery's positive (+) post before reconnecting negative (black) cable to the battery's negative (-) post.

WARNING

Keep battery terminals from touching any metal mower parts when removing or installing battery. Do not allow metal tools to short between battery terminals and metal mower parts. Shorts caused by battery terminals or metal tools touching metal mower components can cause sparks. Sparks can cause a battery gas explosion which can result in personal injury.

WARNING

Acid can cause serious injury to skin and eyes. Avoid skin contact with battery acid and always wear eye protection when checking the battery. Flush area with clean water and call a physician immediately. Acid will also damage clothing.

WARNING

Do not overfill battery. Electrolytes may overflow and damage paint, wiring and structure. Use soap and water when cleaning the battery. Be careful not to get soap and water into the battery. Use soda mixed in water to clean corrosion off the terminals.

WARNING

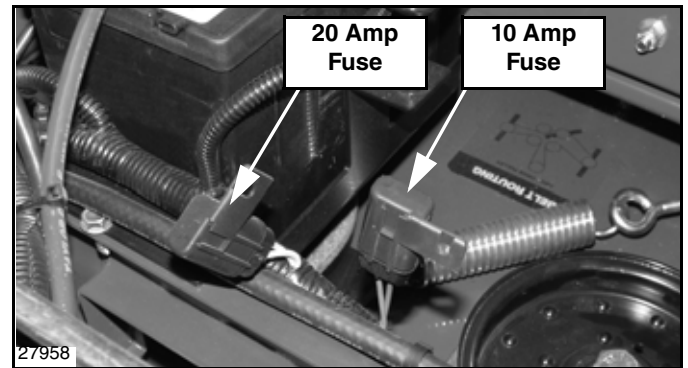
Do not allow an open flame near the battery when charging. Hydrogen gas forms inside the battery. This gas is both toxic and flammable and may cause an explosion if exposed to a flame.

Common circuit problems are usually caused by electrical shorts, corroded, or dirty terminals, loose connections, defective wire insulation, or broken wires. Switches, solenoids, and ignition components may also fail, causing a shorted or open circuit.

Refer to Figure 5-7:

The electrical system is protected by fuses located along the wire harness beneath the seat. The fuses are:

- Main - 20 Amp, blade type
- Clutch - 10 Amp, blade type



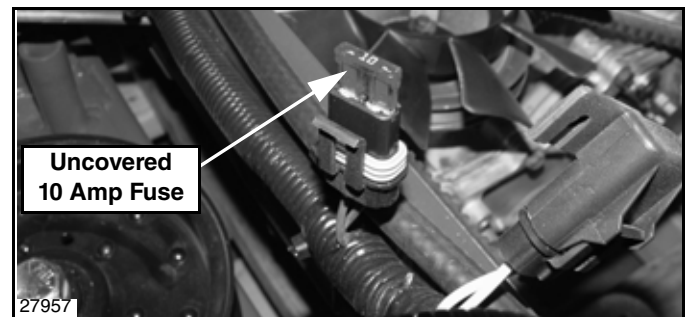
Wiring Harness Fuses
Figure 5-7

Refer to Figure 5-8:

Remove cover over the fuse to access the fuse.

Before diagnosing the electrical system, use a test light or voltmeter to check battery voltage. If battery voltage is satisfactory, check cleanliness and tightness of terminals and ground connections. A general understanding of electrical servicing and use of basic test equipment is necessary for troubleshooting and repair.

Major overhaul or repair of starting motor and charging system should be performed by trained technicians only.



10 AMP Fuse Shown W/Cover Removed
Figure 5-8

Hydrostatic Drive System



DANGER

Hydraulic fluid under pressure can penetrate skin. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Use a piece of cardboard or wood rather than hands when searching for hydraulic leaks. If hydraulic fluid is injected into the skin or eyes, it must be treated by a doctor familiar with this type of injury within a few hours or gangrene may result. **DO NOT DELAY.**



WARNING

Always wear adequate eye protection when servicing the hydraulic system.

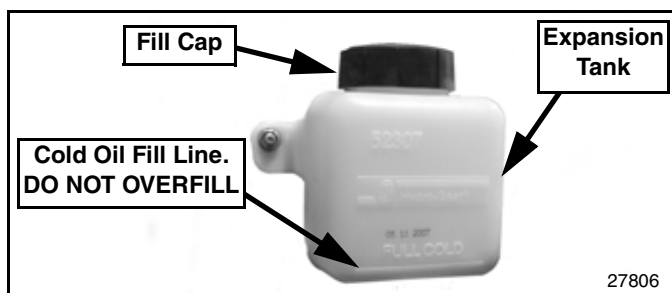
IMPORTANT: Do not use a high pressure washer on or around the hydraulic transaxles. Water intrusion will result and void the warranty.

The ZSR Series is equipped with Hydro-Gear ZT-3100™ Integrated Zero-Turn Transaxle units. The units are located beneath the seat. See “**Accessing Area Beneath the Seat**” on page 18 for instructions to pivot the seat platform up. These units are self contained and maintenance free except for changing oil and filters.

IMPORTANT: Repairs to a transaxle unit should be performed by trained technicians only.

NOTE: Make certain to place the control arms in the park position before rotating the seat platform up.

NOTE: The transaxle units are equipped with bypass valves. For more information refer to “**Moving Mower with Stalled Engine**” on page 18.



Hydraulic Reservoir

Figure 5-9

Hydraulic Oil Level Check

Refer to Figure 5-9:

Hot oil expands, therefore, check hydraulic oil level only when it is cold. The left side is independent from the right side. Make sure you check and fill oil as needed on both sides. Oil level should be about 1/8" deep in the bottom of expansion tank when cold. Add hydraulic oil to the tank if no oil is present. **Do not overfill.** See page 50 for hydraulic oil specifications.

Transaxle Oil and Filter Change

The mower has two independent hydrostatic transaxle systems. Each system will require separate oil and oil filter changes. It is best to change oil soon after using the mower while dirt particles are still suspended in the oil. See page 50 for transaxle oil specifications.

Initially, change oil and oil filters after the first 25 to 50 hours of operation. Thereafter, change oil and filters every 200 hours or every year whichever comes first. Two filters are required with each oil change. They may be purchased from your nearest Land Pride dealer. See page 50 for filter part numbers.

IMPORTANT: The transaxles must be purged after every oil change. See “**Transaxle Purging Procedures**” on page 37.

IMPORTANT: Refer to Figure 5-11 on page 37. Clean debris from around expansion tank cap (#1), top port plug (#4), and oil filter (#1) shown in Figure 5-10 on page 37.

1. Park unit on a flat level surface. Stop engine and remove ignition key. Make sure blade engagement switch is **in the down (OFF) position**. Spread control levers fully apart.

Refer to Figure 5-10 & Figure 5-11 on page 37:

2. Begin on the left side by placing an oil pan (12" or more in diameter with approximately 8 qt. capacity) beneath the transaxle oil filter (#2).
3. Remove screws (#3) and filter guard (#1).
4. Clean transaxle exterior and expansion tank of any debris. A degreaser may be needed.

NOTE: Drain old oil filters of all free flowing oil prior to disposal. Place used oil and oil filter in appropriate containers and deliver to an approved collection facility.

5. Unscrew the used oil filter (#2). Be sure to properly dispose of filter.
6. Remove expansion tank cap (#7) to facilitate drainage.
7. Allow oil to drain until it has slowed to a slow drip. Be sure to properly dispose the oil.
8. After oil has completely drained, install a new oil filter per instructions below:
 - a. With a clean rag, clean the mounting surface that the filter seats against.
 - b. Apply a thin coat of oil on the rubber seal surface of the new filter (#2).
 - c. Screw filter on until it makes contact with the surface it seats against.
 - d. Tighten filter an additional 3/4 to 1 full turn more.
 - e. Install filter guard (#1) with three 1/4" screws (#8). Torque screws to 65 in-lbs.

9. Remove top port plug (#4). This will allow the transaxles to vent during oil fill.
10. Fill transaxle with oil by adding oil to the expansion tank (#7) until oil appears at the top port opening (approximately 2 qts.). See page 50 for transaxle oil specifications.
11. Install top port plug (#4) and tighten to 180 in-lbs.
12. Continue to add oil to the expansion tank until oil reaches the full cold line (approximately 1/2" up from the bottom of the tank).

NOTE: The fill tube (#5) should be hand squeezed several times to burp out air and to drain oil from the expansion tank into the tube. Be careful not to damage the tube while squeezing it. Use a protective cloth wrapped around the tube if using a tool to squeeze such as a pair of pliers.

13. Reinstall expansion tank cap (#7) by hand. Be careful not to over-tighten.
14. Wipe off all excess oil. A degreaser may be needed to remove excess oil.
15. Repeat steps 1 to 14 for the right side.

Transaxle Purging Procedures

It is critical that air is purged from the hydrostatic drive system to keep it efficient. This is because compression and expansion rate of air is higher than that of oil.

This purge procedure should be implemented any time the hydrostatic system has been opened to facilitate maintenance or after the oil has been changed.

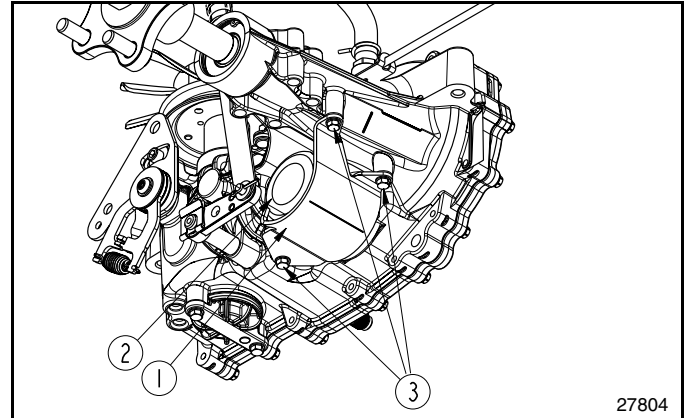
Symptoms of a hydrostatic system that has not been purged may be:

1. Noisy operation.
2. Lack of power after short term operation.
3. High operation temperature and excessive expansion of oil.

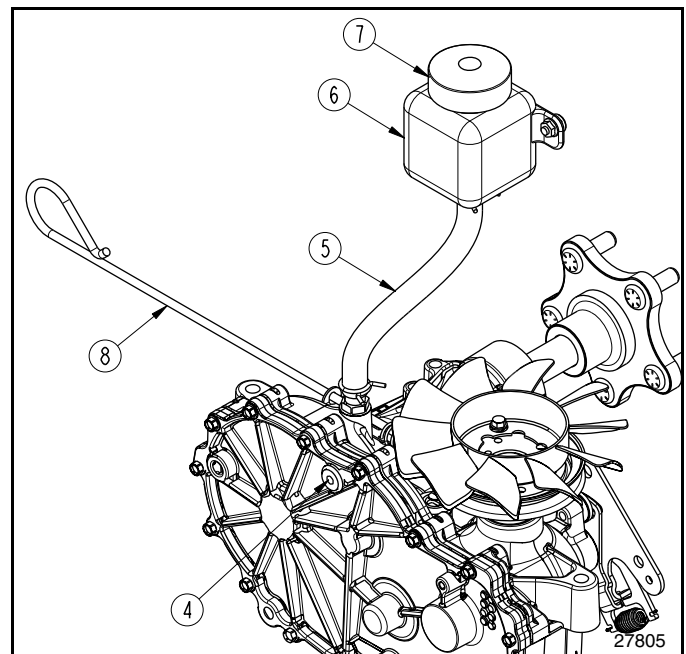
Refer to Figure 5-11:

Before purging system, make sure fill tubes (#10) are full of oil and expansion tanks (#11) are filled to the cold full line. Squeeze all air from fill tubes and add oil if expansion tanks are low. See page 50 for transaxle oil specifications. The following procedures are best performed with mower drive wheels off the ground and then repeated under normal operating conditions. If this is not possible, the procedure should be performed in an open area free of any objects or bystanders.

1. Open both transaxle bypass valves by pulling out on the bypass valve rods (#13) and lifting them into the slot to lock them in position. Bypass valve rods are located at the rear of the engine platform.
2. Start the engine and place both control levers in neutral. Slowly move the control levers completely forward and reverse 5 to 6 times.



Left Transaxle (View of Oil Filter)
Figure 5-10



Left Transaxle (Inboard View)
Figure 5-11

3. Close both bypass valves by pulling back on the rods, lowering them down and slowly releasing them to allow the springs to pull back on the rods.
4. With engine running and control levers in neutral, slowly move levers forward and reverse 5 to 6 times.
5. Stop engine and check fill tubes (#10) and expansion tanks (#11). Squeeze all air from fill tubes and add oil if expansion tanks are low.

IMPORTANT: The transaxle is considered purged when transaxles are at the proper oil level, operate at normal noise levels, oil temperatures are not excessively high, and mower does not lack power.

6. It may be necessary to repeat Steps 1 to 5 until all air is completely purged from the system and the transaxle operates at normal noise levels and travels at normal speeds.

Fuel System

Refer to Figure 5-12:

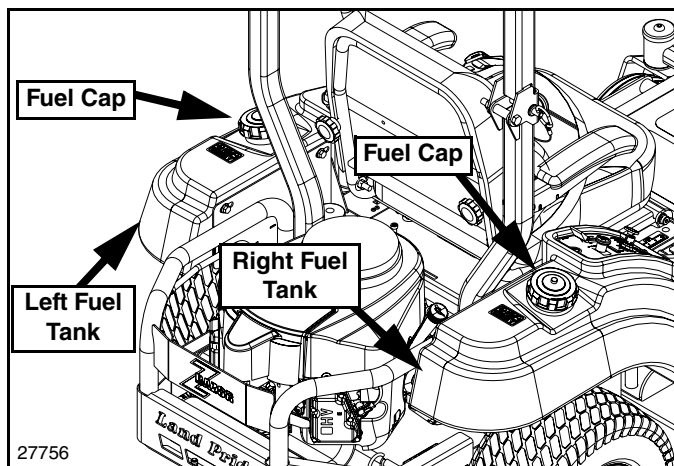
The fuel tanks are located on the mower's fenders. Total capacity of the fuel tanks is 12 U.S. gallons. Before filling, push blade engagement switch (**OFF**), move both control levers (**OUT**), set park brake (**ON**), and turn switch key (**OFF**). Allow engine to cool before filling tanks.

Allow engine to cool before filling tanks. Clean dirt from around fuel tank cap. Remove cap and begin filling. Do not fill fuel tanks to the top. Fuel will expand in hot weather and seep out through the fuel tank vent system. When finished, screw cap back on tight. EPA compliant caps will make a clicking noise and ratchet action that can be heard and felt when tight. Wipe up any spilled gasoline. Use regular unleaded gasoline with an (R+M)/2 octane rating of 87 or higher.

IMPORTANT: The fuel system can be damaged if the wrong fuel is used. Never use methanol, lead gasoline, or unleaded gasoline containing more than 10% ethanol. Do not mix oil with gasoline.

Land Pride recommends adding correct amounts of gas stabilizer/conditioner in the fuel. For best results, follow engine manufacturer's directions. Using a fuel stabilizer/conditioner in the fuel can provide benefits such as:

1. Keeps gasoline fresh during storage of 90 days or less. Drain fuel tanks if storage is longer.
2. Cleans engine during operation.
3. Eliminates gum-like varnish build-up in the fuel system.



Left & Right Fuel Tanks
Figure 5-12

DANGER

- Replacement of fuel system parts (i.e. gas caps, hoses, fuel tanks, fuel filters, etc.) must be the same as original parts. Fire and/or explosion can occur if not followed.
- Observe safe fuel handling precautions. Fuel is flammable and vapors are very explosive. An explosion or fire can burn, destroy and kill property, animals and people.
- Do not fill tank with engine running or while engine is hot. Allow engine to cool before filling. Fuel spilled over engine, muffler, or hot objects may result in a fire or explosion.
- Allow engine to cool before servicing the fuel system.
- Do not smoke while handling fuel or around the fuel tanks.
- Do not fill fuel tanks to the top. Fuel will expand in hot weather and seep out through the fuel tank vent system.
- Screw gas cap on immediately after filling a tank. Never operate mower without gas caps installed.
- Clean up any gasoline spills immediately.
- Keep fuel away from open flame or spark.
- Store mower away from open flame and sparks.
- Refuel outdoors preferably, or in well ventilated areas.
- Never attempt to start the engine when there is a strong odor of gasoline fumes present. Locate and correct cause.
- Never buy more than a 30 day supply of gasoline and store it in an approved container out of children's reach.
- Do not fill gasoline containers inside a vehicle, on a truck, or on a trailer. Interior carpets and plastic truck bed liners insulate the container and slow loss of static charge.
- When practical, remove equipment from the truck or trailer and refuel the equipment with its wheels on the ground. If this is not possible, then refuel the equipment on the truck or trailer using a portable container and not a gasoline dispenser nozzle. If a gasoline dispenser nozzle must be used, keep nozzle in contact with rim of fuel tank or container opening at all times until fueling is complete.
- Gasoline is a poison that is harmful or fatal if swallowed.
- Avoid prolonged breathing of vapors. Long-term exposure to vapors can cause serious injury and illness.
- Keep face away from nozzle and gas tank opening.
- Keep gas away from eyes and skin.

Evaporative Emission Control System

All Land Pride Zero Turn Mowers will be EPA compliant on the required January 1, 2012 date. Mowers that are EPA compliant now have a decal on them stating: "This Equipment meets U.S. EPA Evap. Standards." The Evaporative Emission Control System requires no regularly scheduled maintenance but should be inspected periodically, and thoroughly examined at least once a year at the beginning of the mowing season:

1. Inspect all fuel system components including tanks, vents, hoses, clamps, fuel filter, valves, and fittings for leaks, cracks, and loose connections. Make repairs as necessary.
2. The fuel tanks are equipped with tethered caps. Ensure tether is present and secured to the cap.
3. The fuel caps have been designed to provide audible and tactile feedback indicating that proper sealing has been achieved. Ensure that this function is present and that no fuel leaks from the filler neck during usage. If fuel leakage is ever noticed at this point, the fuel cap must be replaced immediately.

Fuel Filter

Refer to Figure 5-22 on page 44:



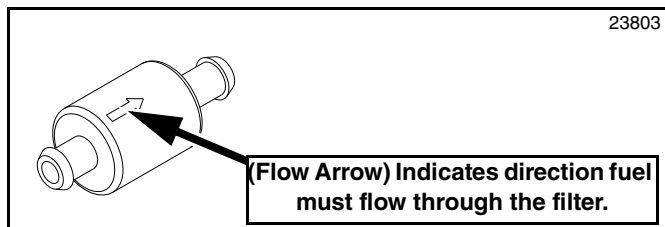
DANGER

Empty fuel tank before replacing fuel filter to keep fuel from leaking out and creating a fire/explosion hazard.

The fuel filter is installed in the fuel line between the Left/Right Fuel Tank Valve and engine fuel pump. Location of fuel filter will vary depending on which engine your mower is equipped with. See engine owner's manuals for exact location of fuel filter and instructions on removal and installation.

Refer to Figure 5-13:

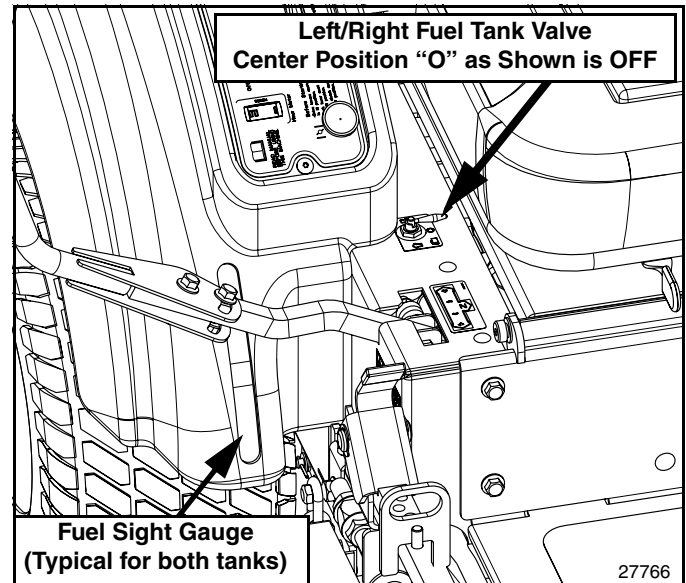
Replace fuel filter annually at the beginning of each mowing season or after every 100 hours of operation, whichever occurs first. (Plugged filter considered maintenance item) This will keep the fuel filter from becoming plugged causing poor engine performance and unexpected downtime. Be sure to install filter with Flow Arrow pointing towards engine side of fuel line.



Fuel Filter
Figure 5-13

Draining The Fuel Tank

1. Park unit on a flat surface. Make sure blade engagement switch is **(OFF)**, both control levers are **(OUT)**, and park brake is **(ON)**. Stop engine and remove ignition key.
2. Disconnect negative battery cable from the battery.
3. Refer to Figure 5-3: Find fuel selector valve and turn to center position "O" to shut off fuel.



Fuel Shut-Off Valve
Figure 5-14

4. Trace fuel line from selector valve to fuel filter. Remove line from fuel filter and place detached end into an approved fuel container.
5. Turn selector valve to right tank and allow tank to drain. Watch level of fuel in the fuel container. DO NOT allow container to overflow, spilled fuel is extremely flammable.
6. Allow tank to drain. Tanks may not drain 100% due to fuel line location.
7. Repeat steps 5 & 6 with the left tank.
8. Reinstall fuel line to its original state and reattach to fuel filter. Location and options may vary by engine.

Belt Maintenance



DANGER

Before raising floor pan or removing pulley guards, make certain blade engagement switch has been shut off, deck has been properly blocked up, engine has been shut off, and switch key has been removed for maximum safety. Replace all guards and floor pan before putting mower back into service. Repairs or maintenance requiring engine power should be performed by trained personnel only.

Refer to Figure 5-15 and Figure 5-16 on page 41:

Replace belts that show signs of severe cuts, tears, excessive weather checking, and cracking or burns caused by slipping. Slight raveling of belt covering does not indicate belt damage. Trim ravelings with a sharp knife.

Inspect belt pulley grooves and flanges for wear. A new belt, or one in good condition, should never run against the bottom of the groove. Replace pulley when this is the case, otherwise belt will lose power and slip excessively.

Never pry a belt onto a pulley as this will cut or damage the fibers of the belt covering.

Keep oil and grease away from belts, and never use belt dressings. Any of these will destroy the belt composition in a very short time.

Deck Drive Belt Removal & Installation

Refer to Figure 5-15 on page 41:

1. Park mower on a flat surface.
2. Make sure blade engagement switch is **(OFF)**, control levers are fully **(OUT)**, park brake is **(ON)** and engine switch key is **(OFF)** and removed.
3. Place deck height in the lowest position.
4. Remove deck belt covers and raise floor platform.
5. Pull hitch pin (#8).
6. Release deck belt tension with by placing a socket wrench with a 3/4" socket on the over-center-release bolt (#9) and turning counterclockwise. This will relieve the tension on the tension idler spring (#11).
7. Pull tension idler (#6) away from the belt to provide maximum belt clearance.
8. Remove existing deck drive belt (#3).
9. Route new deck drive belt (#3) per the illustration shown in Figure 5-15.
10. Re-tension idler (#6) by turning bolt (#9) clockwise until over-center-release locks in place. Check belt tension per the **"Deck Drive Belt Adjustment"** on page 25.
11. Re-install hitch pin (#8).
12. Re-install deck belt covers and lower floor platform.

Ground Drive Belt Removal & Installation

Refer to Figure 5-16 on page 41:

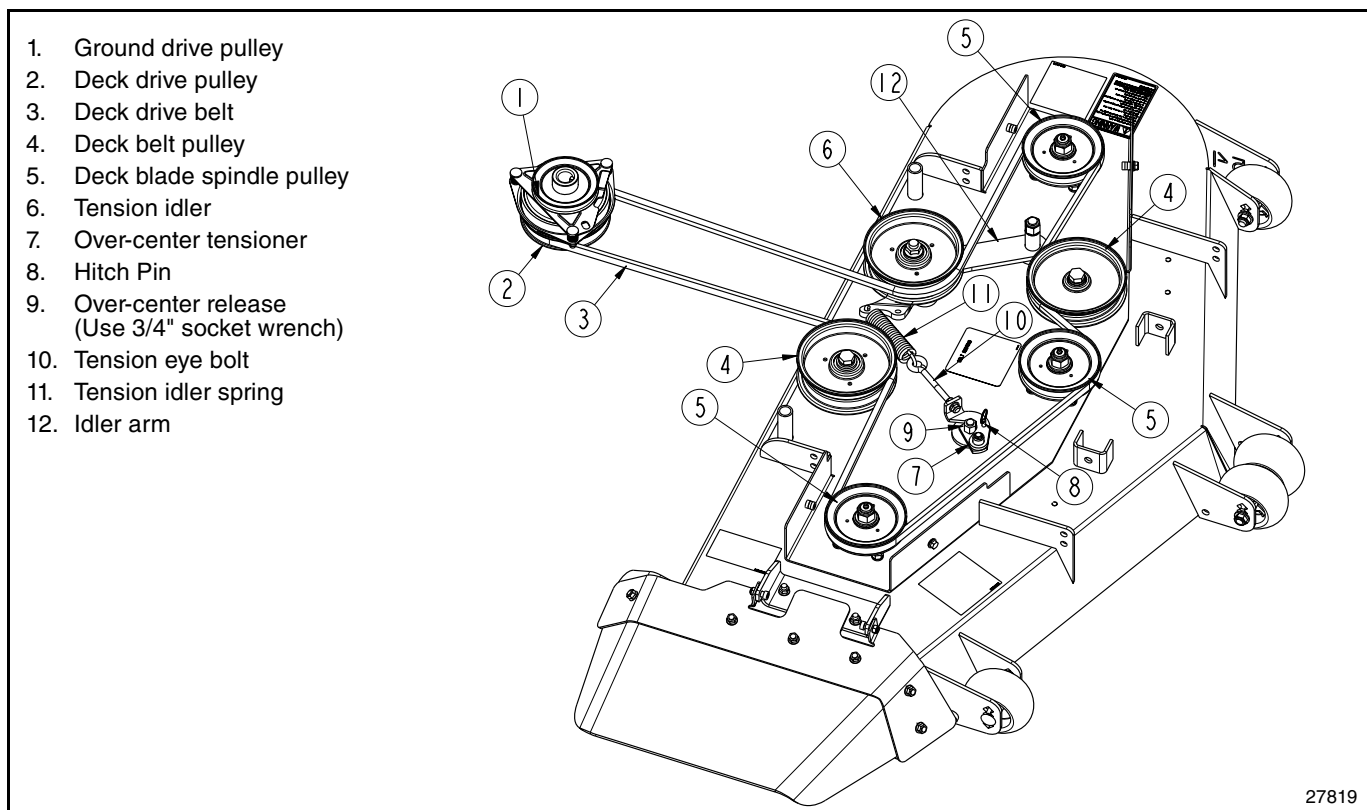
1. Park mower on a flat surface.
2. Make sure blade engagement switch is **(OFF)**, control levers are fully **(OUT)**, park brake is **(ON)**, and engine switch key is **(OFF)** and removed.



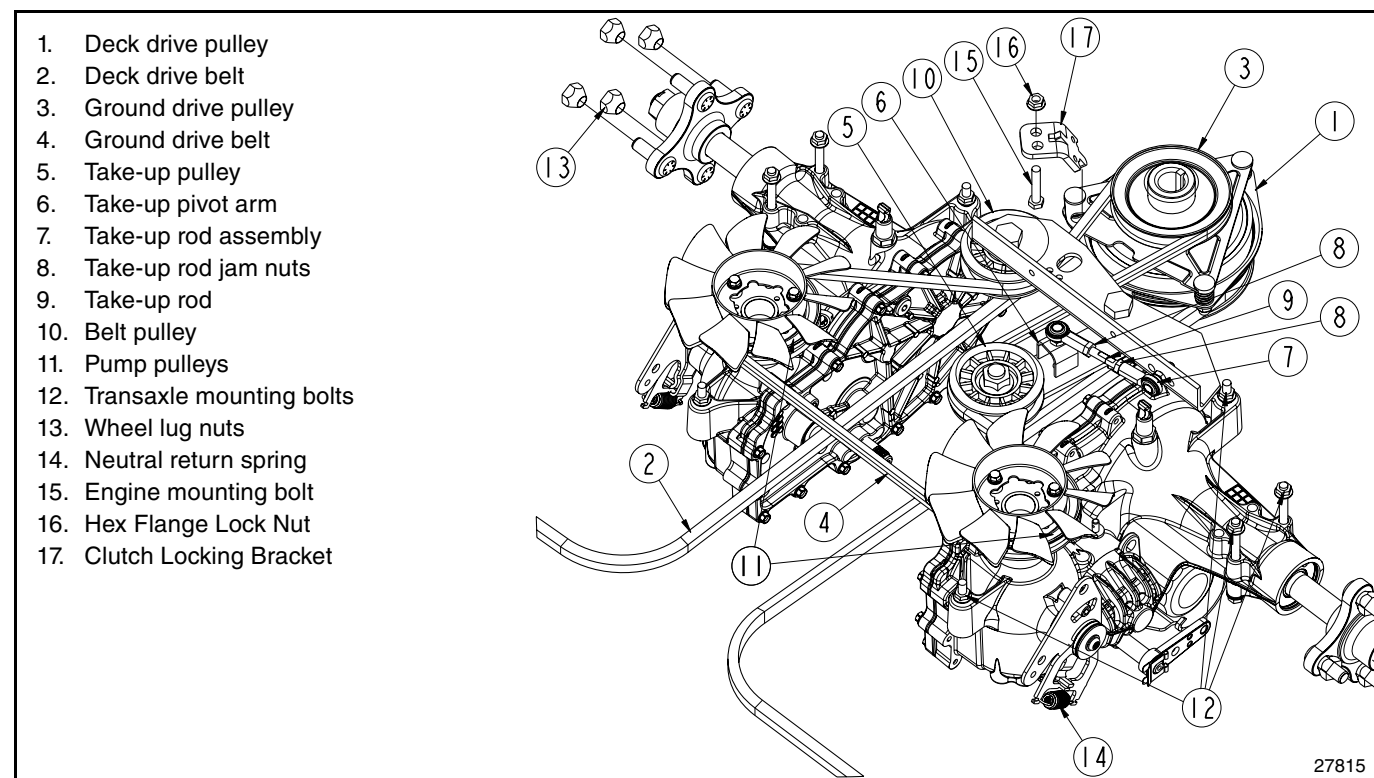
WARNING

Make sure engine and engine muffler are completely cooled before working on and around the drive belt. Severe burns to the body could result if engine and muffler have not cooled.

3. Place deck height in the lowest position.
4. Remove deck drive belt (#2) from deck drive pulley (#1) as outlined in **"Deck Drive Belt Removal & Installation"** instructions on this page. This belt does not need to be removed from any of the deck pulleys shown in Figure 5-15.
5. Back-up jam nuts (#8) 6 or more turns. One nut has right-hand threads and the other nut has left-hand threads.
6. Shorten take-up rod assembly (#7) by screwing take-up rod (#9) until drive belt (#4) can be removed from take-up pulley (#5).
7. Remove clutch locking bracket (#17) by removing front right engine mounting bolt (#15) and nut (#16).
8. Slide drive belt off of take-up pulley (#5), pump pulleys (#11), belt pulley (#10), and drive pulley (#3).
9. Slide new drive belt over drive pulley (#3), belt pulley (#10), pump pulleys (#11), and take-up pulley (#5).
10. Lengthen take-up rod assembly (#7) by screwing take-up rod (#9) until drive belt (#4) is secured on the pulleys.
11. Re-tension drive belt (#4) per **"Ground Drive Belt Adjustment"** instructions on page 25.
12. Re-install deck drive belt (#2) on the deck drive pulley (#1). Make sure the belt is routed properly on all deck pulleys.
13. Re-tension deck belt idler per the **"Deck Drive Belt Removal & Installation"** instructions on this page.
14. Re-install clutch locking bracket (#17) with engine mounting bolt (#15) and hex flange nut (#16). Make sure locking bracket is seated in the clutch locking notch and then tighten the mounting bolt to the correct torque.



Deck Drive Belt Layout
Figure 5-15



Ground Drive Belt Layout
Figure 5-16

Mower Blade Maintenance

Blade Inspection

Check mower blades daily, they are the key to power efficiency and well groomed turf. Keep them sharp, a dull blade will tear rather than cut grass, leaving a brown ragged top on the grass within a few hours. A dull blade also requires more power from the engine.

Replace any blade which is bent, cracked, or broken.



WARNING

DO NOT try to straighten a blade that is bent. Never weld a broken or cracked blade. ALWAYS replace with a new Land Pride blade to assure safety.



DANGER

Never work with blades while engine is running or with blades engaged. Always push blade engagement switch down (OFF), move both control levers to neutral and then fully (OUT), set park brake (ON), and turn engine (OFF). Block up mower when you must work under it. Wear gloves when handling blades. Always check for blade damage if mower should strike a rock, branch, or other foreign object during mowing.

Blade Removal

IMPORTANT: Blade mounting bolts have right hand threads. Turn blade bolts counterclockwise to loosen and clockwise to tighten.

Refer to Figure 5-2 on page 32:

1. Remove cutting blades (#14) with a 11/16" wrench by grasping end of blade with a rag or thick padded glove while loosening and removing 1/2" blade bolt (#12) and blade washer (#13).

Blade Sharpening



DANGER

Keep blades balanced when sharpening. An unbalanced blade may come loose and fly out from under the deck. Also, an unbalanced blade will shorten the spindle bearing's life.



CAUTION

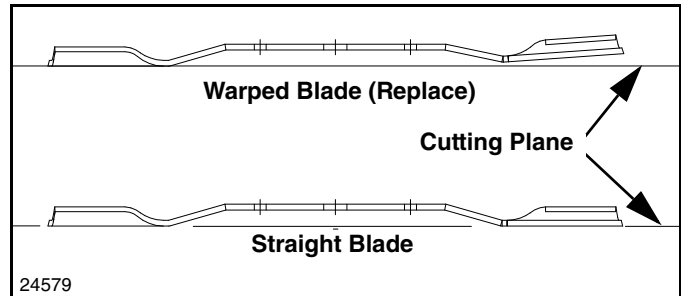
ALWAYS wear eye protection and gloves when sharpening a blade.

NOTE: Care should be taken in order not to remove any more material than necessary to sharpen blade.

1. Clean blade, blade washer and mounting surface of all debris before inspecting blade and sharpening.

Refer to Figure 5-17:

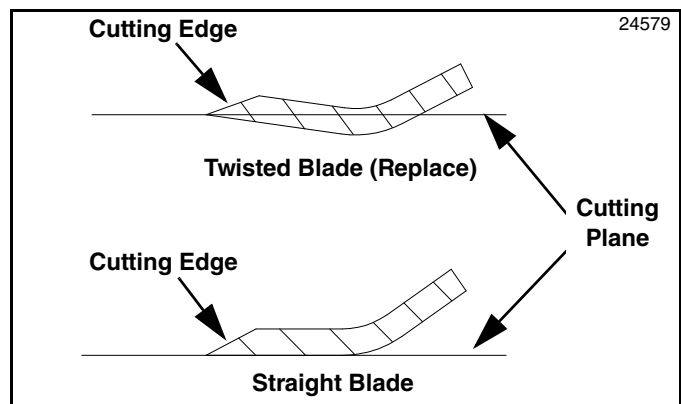
2. Lay blade on a flat surface and check blade to make sure it is not warped. Replace any blade that is warped.



Comparison of Warped & Straight Blades
Figure 5-17

Refer to Figure 5-18:

3. Lay blade on a flat surface and check both ends of blade to make sure it is not twisted. Replace any blade that is twisted.

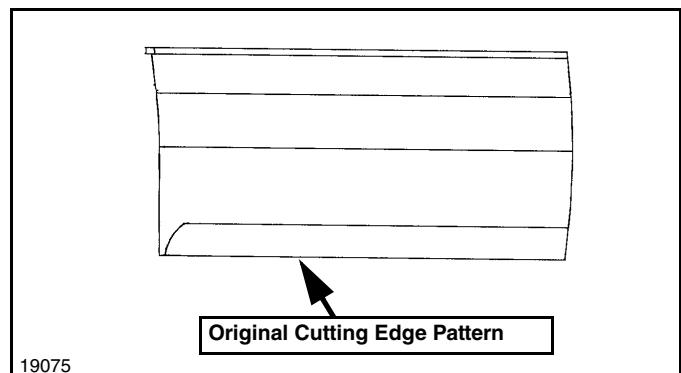


Comparison End View of Twisted & Straight Blades
Figure 5-18

4. Check blade cutting edge. Replace blade if nicks are severe. Blade may be sharpened if cutting edge is dull or slightly nicked.

Refer to Figure 5-19:

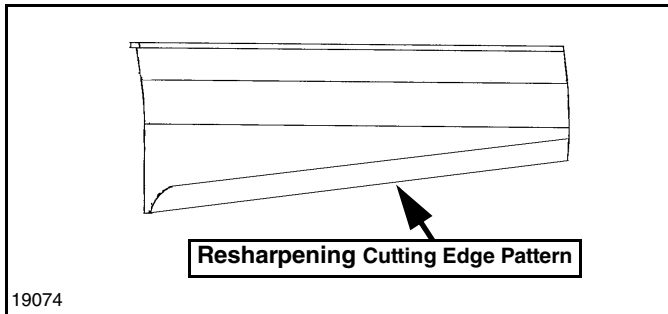
NOTE: New mower blades are furnished with cutting edge parallel with back of blade. Do not sharpen blade to original parallel pattern. It is easier to get a straight cutting edge by reshaping the pattern to the one shown in Figure 5-20.



Blade Reshaping
Figure 5-19

Refer to Figure 5-20:

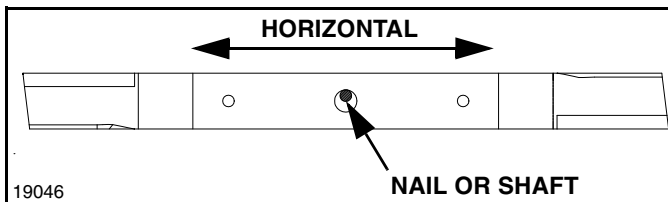
5. Sharpen blade by following the grinding pattern shown in Figure 5-20.
 - a. Grind cutting edge at the same bevel as the original angle. (27 1/2 degrees).
 - b. Sharpen only the top of the cutting edge to maintain sharpness.
 - c. Touch-up sharpening can be done with a file.



Blade Resharpening
Figure 5-20

Refer to Figure 5-21:

6. Remove an equal amount of material from each end of the blade to keep blade in balance. Check blade balance as follows:
 - a. Positioning center of blade horizontally on a nail or shaft. See Figure 5-21.
 - b. If either end of the blade rotates downward, grind (remove) metal on that end until blade will balance horizontally on the nail or shaft.
 - c. Resharpened blades can be installed after they have been properly sharpened and balanced.



Blade Balancing
Figure 5-21

Blade Installation**WARNING**

When mounting blades, rotate them after installation to ensure blade tips do not touch each other or sides of the mower.

**WARNING**

Failure to torque blade bolt properly may result in the blade coming loose and falling off causing a serious injury.

IMPORTANT: Replace mower blades with Land Pride blades only.

IMPORTANT: Always install blades with cutting edge facing direction of blade spindle rotation and with wing tips pointing up towards bottom of deck.

IMPORTANT: Do not re-use blade bolts which have stripped, worn or undercut threads. For proper blade bolt torque value. see **"Additional Torque Values"** on page 57.

Refer to Figure 5-2 on page 32:

1. Reinstall sharpened or new cutting blades (#14), blade washer (#13), and blade bolt (#12). Care should be taken when installing blade bolt to not get it cross threaded.
2. Tighten blade bolt to the correct torque. See **"Additional Torque Values"** on page 57 for correct torque values.

General Engine Maintenance

Detailed instructions and recommendations for break-in and general maintenance are specified in the Engine Operator's Manual. Please refer to this manual for engine servicing, lubricating oil levels with capacity and viscosity recommendations, bolt torques, etc. **The engine warranty is backed by the engine manufacturer.** Special attention should be paid to applicable data which is not duplicated here.

Engine Oil and Oil Filter

Refer to Figure 5-23 on page 45:

See “**Engine Specifications & Capacities**” on page 50 and Engine Operator's Manual for maintenance schedule, oil type, and capacity. Check oil daily and after every 4 hours of operation. Mower must be sitting level when checking oil. Change engine oil and oil filter after the first 5 hours of operation and per engine manufacturer's recommendations thereafter. Change oil more frequently if mower is operated in extremely dirty conditions.

IMPORTANT: Make certain engine is level and you are inserting the dipstick correctly when checking oil. Incorrect oil levels can cause engine problems.

Check Engine Oil

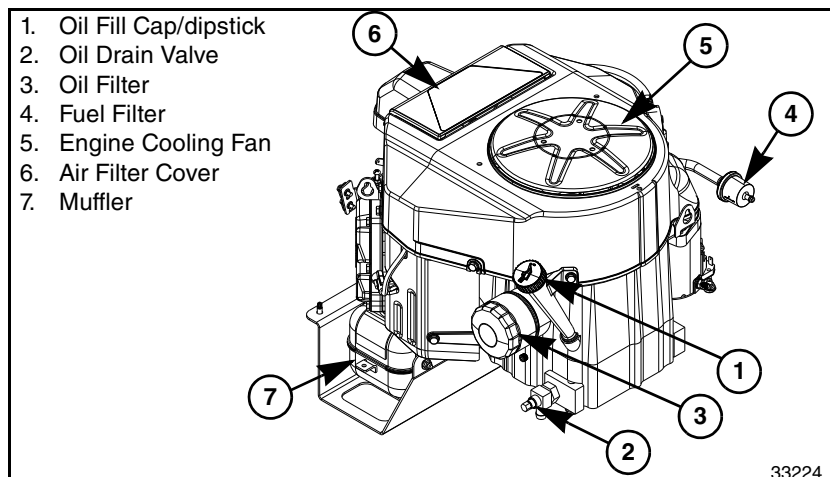
Refer to Figure 5-22:

1. Park on a level surface, shut engine off, and allow time for oil to cool and drain into the sump.
2. Clean area around oil fill cap/dipstick (#1) of dirt and debris before removing it. Unscrew oil fill cap and wipe dipstick clean.
3. Check oil level on dipstick. Insert dipstick fully **without screwing it in** and removing again to check oil level.
4. If oil level on the dipstick is near or below the lower limit mark, then add recommended oil until it reaches the full mark. **Do not overfill.**
5. Reinstall oil filler cap/dipstick by screwing it in firmly.

Change Engine Oil

Refer to Figure 5-22:

1. Park unit on a flat surface. Make sure blade engagement switch is **(OFF)**, both control levers are **(OUT)** and park brake is **(ON)**. Stop engine and remove ignition key.
2. Place a suitable container on the ground beneath drain valve (#2).
3. Unscrew oil drain valve (#2) until oil flows freely and valve head offers some resistance. Do not unscrew valve any farther.
4. Remove oil filter with a filter wrench and let remaining oil drain out. Discarding oil filter in a manner that is compatible with the environment.
5. Clean engine oil filter base. Coat new filter O-ring with clean engine oil and install filter to engine oil filter base.
6. Hand tighten oil filter until O-ring seats. Finish tightening by turning filter to the specifications provided in the Engine Operator's Manual.
7. Retighten drain valve (#2).
8. Dispose of used motor oil in a manner that is compatible with the environment. Do not throw used oil in the trash, pour it on the ground, or down a drain.
9. Fill engine with correct oil and quantity provided in Engine Operator's Manual and specifications on page 50 of this manual. Do not overfill with oil. Continue on next page.
10. Replace oil fill cap/dipstick, start engine, and check oil filter for leaks.
11. Stop engine and check oil level. See “**Check Engine Oil**” on this page.



Kawasaki Engine
Figure 5-22

Engine Air Filter

A specially designed dry filter is standard equipment and supplies clean combustion air to the engine.

NOTE: Do not operate engine with a damaged air filter or without air filter elements. Dirt will enter engine causing dust induced engine damage.

IMPORTANT: Do not block air intake such as setting an object in front of the air intake opening.

Internal Type Air Filters

Refer to Figure 5-22 on page 44:

18.5 HP and 23 HP Kawasaki engines are supplied with internal air filters. Perform engine air filter maintenance per Engine Operator's Manual and "Maintenance Schedule" on page 31.

Canister Type Air Filters

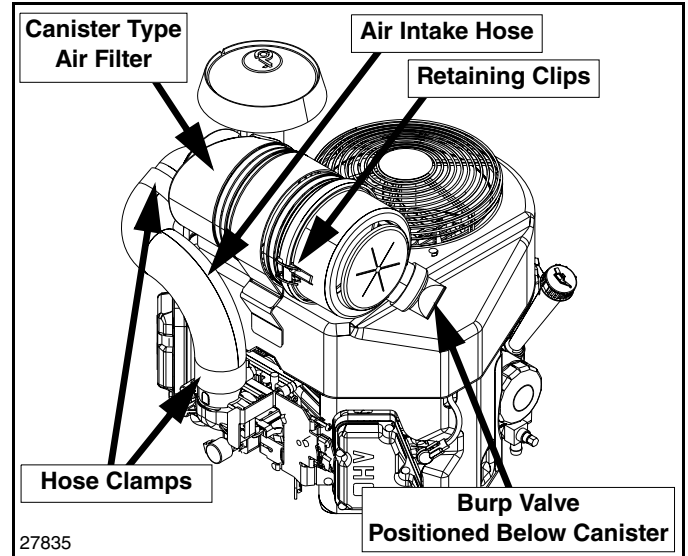
Refer to Figure 5-23 & Figure 5-24:

The 23.5 HP Kawasaki engine is equipped with a canister air filter mounted above the engine. Perform engine air filter maintenance per the Engine Operator's Manual and "Maintenance Schedule" on page 31.

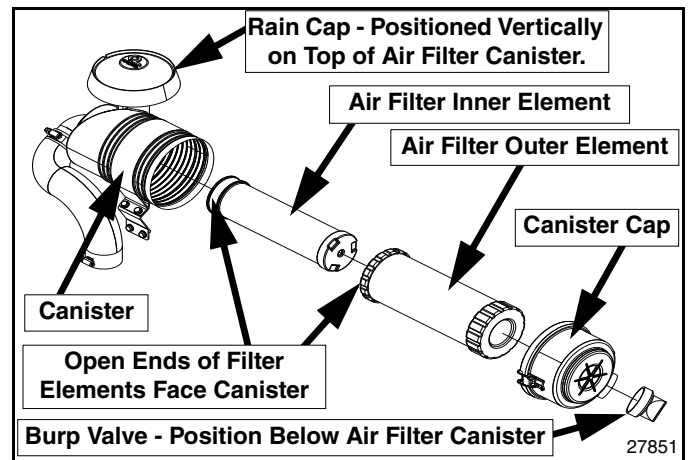
1. Replace filter element every 200 hours or every year, (whichever comes first). **Service more frequently when used in dusty conditions.**
2. Release retaining clips and remove filter element. Clean canister with a damp cloth.
3. Before installing a new filter element, inspect it by placing a bright light inside and rotate the element slowly, looking for any holes or tears in the paper. Also check gaskets for cuts or tears. Do not attempt to use a damaged element which will allow abrasive particles to enter the engine.
4. Inspect burp valve. Replace burp valve if it is cracked, torn, stays open, or is missing. See also "Burp Valve Information" on page 46.
5. Install new inner element into the new outer element as shown in Figure 5-24.
6. Install new outer filter element by inserting the open end in the canister first.

IMPORTANT: Burp valve must be positioned below the canister to make certain it drains water away from the filter elements properly.

7. Reinstall canister cap with burp valve positioned below the canister. Make sure it seals all around the canister before latching retaining clips.
8. Check all fittings and clamps periodically for tightness. Inspect hoses for holes or cracks.
9. Periodically check engine intake hose for signs of ingested dust. Repair source of ingested dirt.
10. Never operate mower without an air filter installed.



23.5 HP Kawasaki Engine With Canister Type Air filter
Figure 5-23



Canister Air Filter For 26Hp Kawasaki Engine
Figure 5-24

Burp Valve Information

Refer to Figure 5-25:

The burp valve is a highly important part of your dust filter. It opens and shuts expelling collected dust and water as the engine's vacuum pressure pulsates. It also dumps dust collected in the filter canister when the engine stops running. If the burp valve is damaged, dust that would normally be discharged from the canister can collect on the filter element causing its life to be shortened. Replace the burp valve if it is open, cracked, torn, or missing.

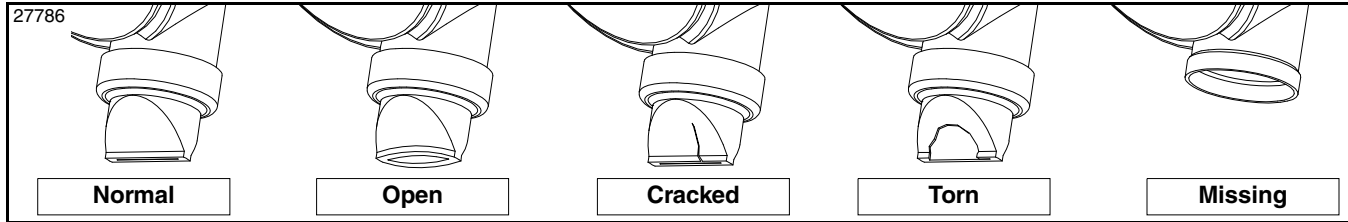


Figure 5-25

Air Filter Handling

Refer to Figure 5-24:

Prevent costly and non-warrantable premature engine damage by maintaining the air filter properly. Many engine problems are due to improper handling of the air filter. Dust and dirt that gets past the air filter will damage engine cylinder, piston, and bearings in a few hours. Avoiding the following common mishandling:

- Over servicing
- Improper installation
- Damaged air filtering system
- Incorrect air filter element

Over Servicing

Over servicing occurs when an air filter element is inspected and/or replaced too often. Dust and dirt can fall off the filter element onto the canister where it can be drawn into the intake system. Only a few grams of dirt getting into an engine during each filter inspection can prematurely produce dust induced engine damage. A partially dirty air filter element is not harmful to the engine.

The air filter element should be changed before it becomes too dirty and restricts air flow to the engine hindering its performance. Replace the air filter element immediately should this happen. Engines that do not get proper amounts of air will draw in excessive amounts of gas causing premature engine damage.

The frequency of the air filter needing changing is largely determined by operating conditions. Dusty conditions will require more frequent servicing.

A dirty filter element should always be replaced with a new element. Improper cleaning procedures can get dust on the inside of the filter causing dirt induced and engine damage. **The air filter warranty expires upon cleaning or servicing a used filter in any manner. Land Pride does not warranty a dust induced engine damage if a used air filter element has been cleaned or serviced in any manner.**

Improper Installation

Improper installation occurs when dust leaks past the seals. The filter element must be aligned within the canister and properly seated on both ends to prevent dirt from entering the engine.

Damaged Air Filtering System

A damaged air filtering system occurs from mishandling of the filter element and operating the mower in areas that could damage the canister.

Banging and/or bumping the filter element against a solid object such as a tire or blowing the element with air can damage the seals and/or force dust and dirt particles through the filter media creating a hole for dirt to pass through to the engine.

Driving the mower carelessly over rough terrain, jutting sticks, heavy brush, and severe rocks can damage the air cleaner canister. Periodically inspect the outside of the air cleaner canister for external damage and replace if necessary.

Incorrect Air Filter Element

The air filter must remain intact to block passage of dirt and foreign particles. It must be of sufficient size and construction to withstand stresses, caused by rapid cycling of air volume demanded by the engine, without cracking or tearing under fatigue and pressure. Its filter elements must have the correct media composition, filter area, micron size, and dimensions to properly filter the air of dirt while at the same time passing sufficient air to the engine.

Land Pride and the engine manufacturers have carefully selected a reliable filter designed to fit these needs. Always use genuine Land Pride filters. **Failure to use original equipment replacement parts is an alteration and will not be considered for warranty in the event of a dust induced engine damage.** See "Engine Specifications & Capacities" on page 50 for Land Pride air filter replacement numbers.

End of Season & Long Term Storage

Take the following steps when storing the mower at the end of the season and when the unit will not be used for long periods to ensure readiness for the next mowing season.

IMPORTANT: Do not use a high pressure washer on or around hydraulic pumps and motors. Water intrusion will void pump and motor warranties.

1. Remove all grass, dirt, trash, and grease that may have accumulated on the mower and moving parts.
2. Scrape off compacted dirt, trash, and grass clippings from the deck underside. A coating of oil may also be applied to the deck underside to minimize oxidation.
3. Clean and touch up all scrapes with Land Pride spray paint.
4. Check blades and blade bolts for wear and replace if necessary.
5. Check thoroughly for any worn or damaged parts that need replacing and order them from your nearest Land Pride dealer.
6. Thoroughly lubricate machine, according to lubrication instructions.
7. Prepare engine for storage:
 - a. Run engine for a minimum of 15 minutes.
 - b. Drain oil from crankcase while engine is still warm.
 - c. Refill with fresh oil of proper viscosity. Refer to **"General Engine Maintenance"** on page 44 and **"Engine Specifications & Capacities"** on page 50.
 - d. Drain fuel tank and run engine until it stops from lack of fuel. Gasoline evaporates if left in carburetor for long periods, forming gum and varnish deposits in the carburetor. These deposits will cause engine flooding and loss of power.
 - e. Service air cleaner. See **"Engine Air Filter"** on page 45.
 - f. Remove and replace fuel filter if not done in the previous 100 hours.
 - g. Remove spark plugs and pour a tablespoon of engine oil into each spark plug hole. Install plugs, but do not reconnect plug leads.
 - h. Crank engine with starter at least a dozen revolutions to distribute oil over cylinder walls and valve mechanism.
 - i. Clean dirt and chaff from cylinder fins, blower housing, and muffler.
 - j. Clean exterior surface of engine. Spread a light film of oil over any exposed metal surfaces of engine that are subject to corrosion.
 - k. Check oil fill cap and fuel tank caps to make certain they are securely in place.

8. Store mower in a clean, dry place.
9. Block mower up so weight is off the tires.

NOTE: Do not deflate tires.

10. Protect battery from freezing temperatures. Disconnect the negative ground wire from battery to reduce chances of a slow electrical drain. Occasionally recharging battery during storage will extend battery life.

New Season Preparation

The following service is required before starting the mower after storing it for a season:

IMPORTANT: Do not use a high pressure washer on or around hydraulic pumps and motors. Water intrusion will void pump and motor warranties.

1. Clean mower, removing trash and dirt accumulation.
2. Check engine oil level.
3. Tighten any bolts that have loosened and make sure all hair pins, cotter pins, and clevis pins are in place.
4. Install all safety shields and review safety precautions listed in this manual.
5. Check and inflate tires to correct psi provided in **"Tire Inflation Chart"** on page 57.
6. Fill fuel tank with fresh gasoline.
7. Reconnect spark plug leads to spark plug.
8. Run machine at half speed for 5 minutes, checking operation of the control levers. Stop engine and check for oil leaks, loose fittings, and so forth.

Lubrication Points

Lubrication
Legend



Multi-purpose
spray lube



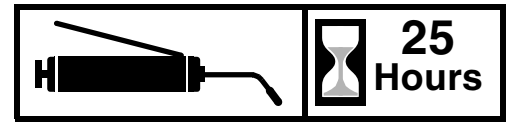
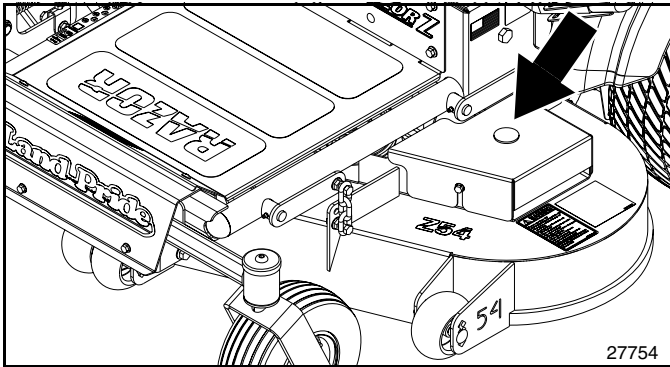
Multi-purpose
grease lube



Multi-purpose
oil lube



Intervals in hours at which
lubrication is required



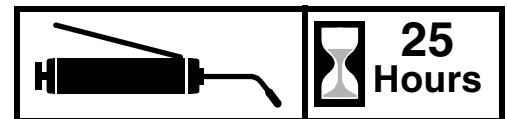
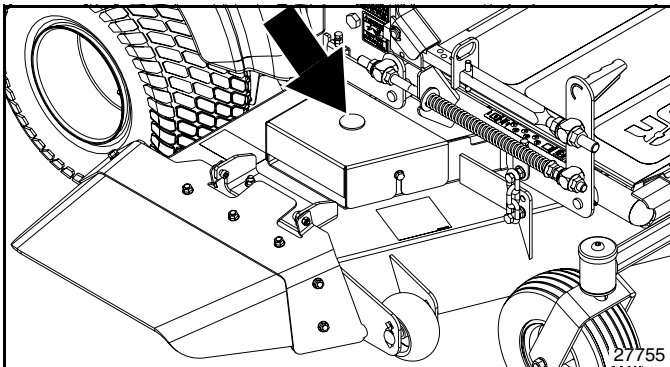
Left Blade Spindle

Access through rubber slit in pulley cover.

1 - Zerk

Type of Lubrication: Multi-purpose Grease

Quantity = As required



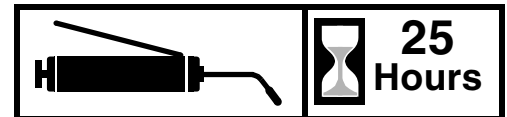
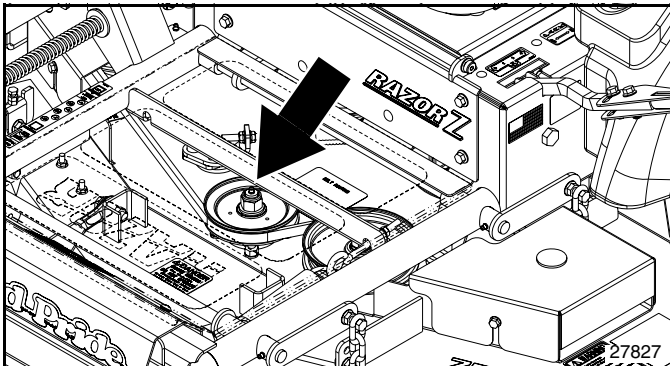
Right Blade Spindle

Access through rubber slit in pulley cover.

1 - Zerk

Type of Lubrication: Multi-purpose Grease

Quantity = As required



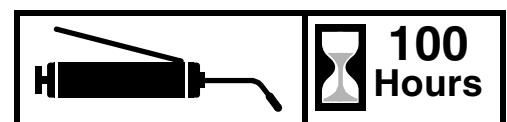
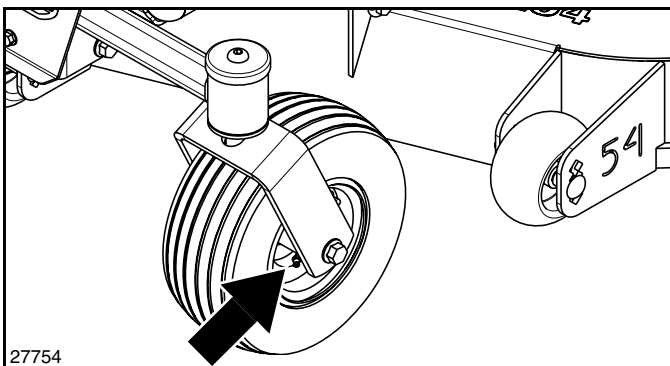
Center Blade Spindle

Lower Deck fully down to access under floor platform

1 - Zerk

Type of Lubrication: Multi-purpose Grease

Quantity = As required



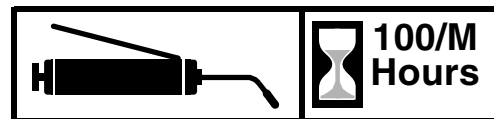
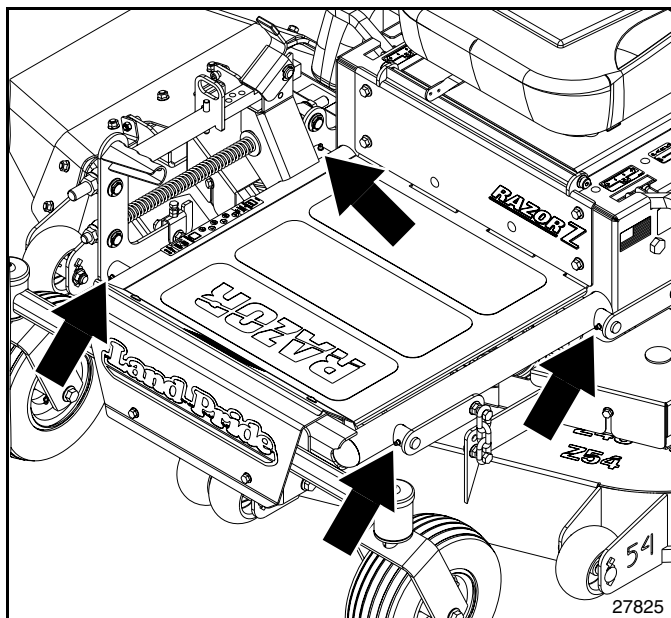
Caster Wheel Bearing

Located on hub of caster wheel

2 - Zerks (One on each caster wheel)

Type of Lubrication: Multi-purpose Grease

Quantity = As required



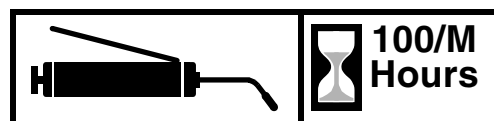
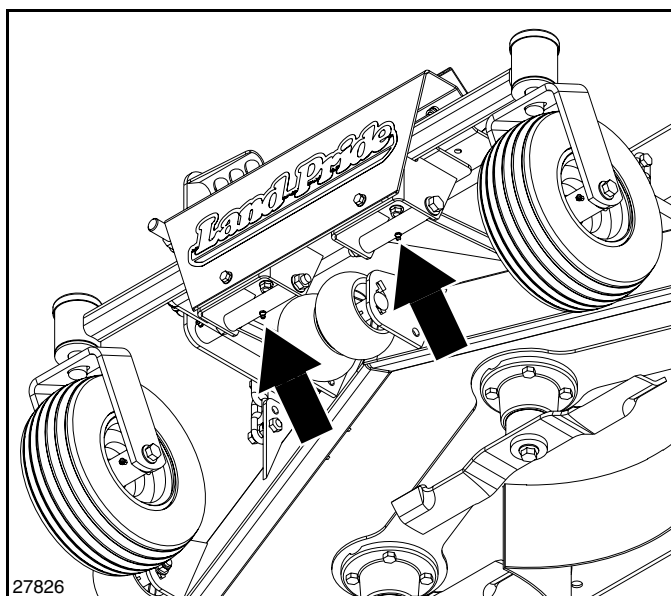
Deck Lift Points

Locate on both sides of the floor platform

4 - Zerks (2 per side)

Type of Lubrication: Multi-purpose Grease

Quantity = As required every 100 hours or monthly, whichever comes first.



Deck Lift Pivot

Located in front of deck pivot mount

2 - Zerks

Type of Lubrication: Multi-purpose Grease

Quantity = As required
Every 100 hrs. or monthly, whichever comes first.

Engine Specifications & Capacities

Engine Manufacture	Kawasaki	
Mower Models	ZSR54, ZSR60	ZSR54, ZSR60
Horsepower	23	23.5
Engine Model Type	FS691V	FX730V
Max Torque @ 2400 rpms	40.9 ft. lbs (55.4 N.m)	42.1 ft. lbs. (57.1 N.m)
Charging System	12-volt, 15 amps	
Starter	12-volt Electric Starter	
Ignition	Keyed 12 volt electronic system	
Governor	Mechanical	
Fuel Type	Unleaded gasoline with octane rating of 87 or higher	
Oil Cooling	without	
Engine Cooling	Forced air cooled, Fly-wheel fan	
Engine Type	4-stroke OHV, V-twin cylinder, gasoline	
Number of Cylinders	2	
Displacement	44.3 cu. in. (726cc)	44.3 cu. in. (726cc)
Compression Ratio	8.2:1	8.2:1
Spark Plug No.	BPR4ES (NGK)	
Oil Capacity with Filter Change	2 US quarts (1.9L)	
Oil Type	SAE 10W-30	
Oil Filter Part No.	831-073C	
Fuel Filter Part No.	831-031C	
Air Filter Part No	831-074C	Outer 831-075C Inner 831-076C

Hydrostatic Transaxle Specifications & Capacities

Mower Model No	ZSR54 & ZSR60
Transaxle Model Nos.	ZT-3100™
Gear Type	Cut Steel Gears
Number of Wheel Lugs	5
Traction Drive Type	Dual Hydrostatic Transmission
Hydraulic Motor/Pumps	Two variable displacement, axial piston type.
Hydraulic Motor/Pump Drive	V-belt drive from engine crankshaft
Hydraulic Oil Type	SAE 20W-50 engine oil
Hydraulic Oil Capacity - Per Side	Total = 78 to 80 fl. oz. to fill transaxle and expansion tank to cold fill line (75.7 fl. oz. to fill transaxle to top port plug + 4.3 fl.oz. to cold fill line in expansion tank)
Hydraulic Oil Filter No.	831-060C

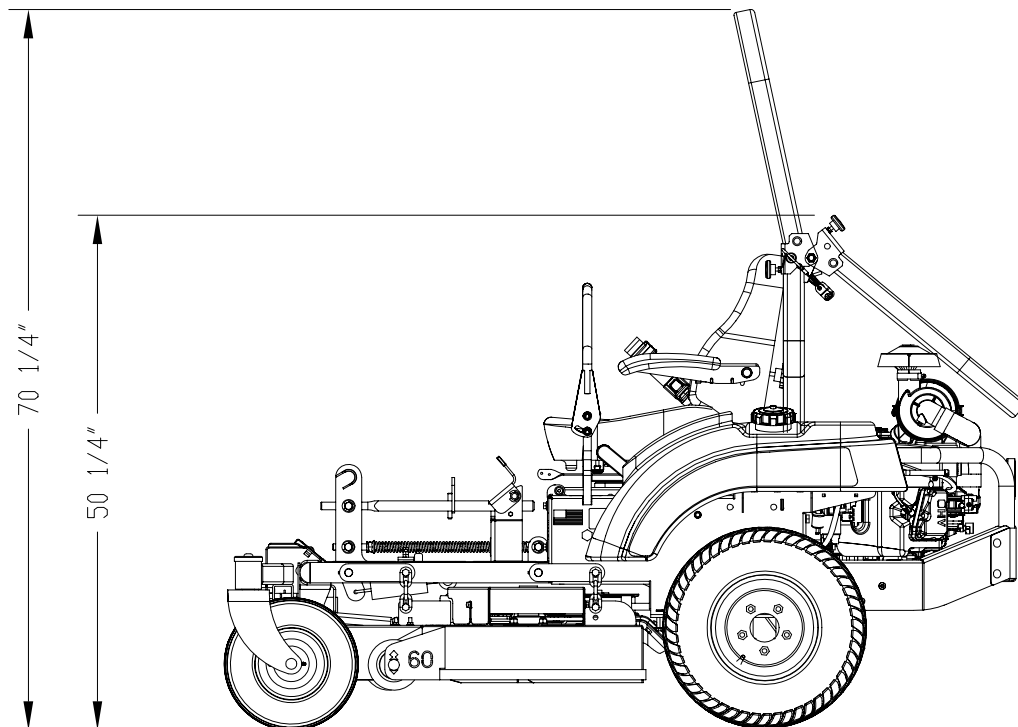
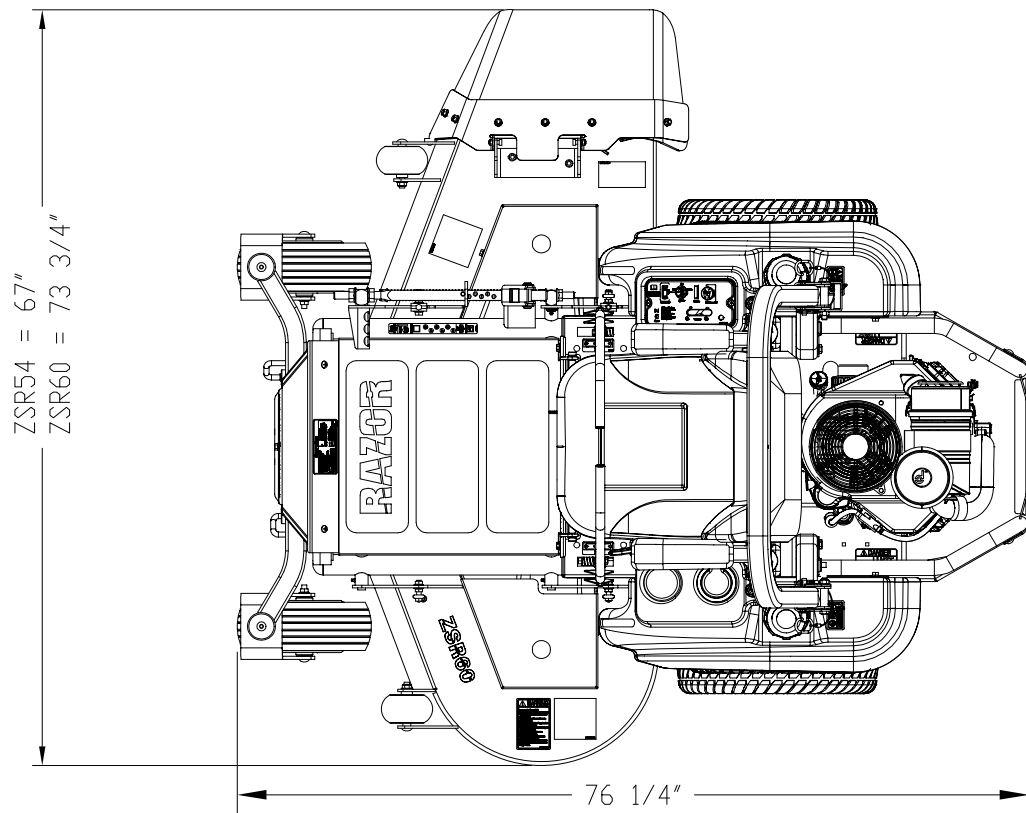
General Specifications & Capacities

Mower Model No	ZSR54	ZSR60
Weight with deluxe seat	890 lbs	915 lbs.
Width of Cut	54"	60"
Cutting Height	1 1/2" to 4 1/2" In 1/4" increments	
Trim Capacity (left side)	3"	6"
Overall width Chute down	67 1/4"	73 3/4"
Overall Length	78 1/4" with hitch plate	

Specifications to continue on next page.

General Specifications & Capacities

Mower Model No	ZSR54	ZSR60
Tire-to-tire width:	48"	
Overall Height Top of folded ROPS	50 1/4"	
Top of unfolded ROPS	70 1/4"	
Certified ROPS	Standard	
Drive Tires	5-bolt, 20 x 10 -10 Turf Tread	
Front Tires	13 x 5 - 6, Ribbed tread with roller bearings	
Hour Meter	Standard equipment	
Fuel Capacities	12 US GAL	
Steering Type	Hydrostatic Twin lever steering provides independent control of each drive wheel.	
Twin Lever Steering Controls	Speed, forward, reverse, brake, and turns.	
Steering Turning Radius	True zero degree. Turns with counter-rotating independent drive wheels.	
Brake Service	Hydrostatic dynamic braking.	
Park Brake Type	Manual activated over-center lever to pawl over cog wheel.	
Ground Speed	Forward: 0-7.2 MPH Reverse: 0-4.5 MPH	
Motor Drive	Single V-belt with electric clutch and manual take-up idler pulley.	
Wheel Drive	High torque piston type planetary reduction motors	
Electrical Operated Logic-Control Safety Features	Electric logic-control system governs blade engagement, forward & reverse motion, engine starting & running, and parking brake functions.	
Evaporative Emission Control System on EPA Compliant Mowers	This equipment uses a sealed fuel system which incorporates a non-vented fuel cap. Evaporative emissions are vented to the engine where they combust during normal engine operation.	
Seat Options	Deluxe cushion seat with arm rests.	
Mainframe Construction	Welded steel	
Front Caster Wheels	Free turning with greasable roller bearings.	
Front Caster Fork Construction	5/16" steel.	
Deck Thickness	10 Gauge decks with 11 gauge doubler plate and 3/16" reinforcement plate connecting spindle housing mounts	
Box-Section Reinforced Front Edge	10 ga. thick	
Deck Trim Edges	Solid 1" x 3/8" steel bar for reinforced trim edge & doubled plated 10 Gauge front edge.	
Deck Housing Depth	5 3/16" deep, (room for high-capacity mowing)	
Deck Lift	Foot-operated deck height adjustment with locking pin for setting height.	
Hand Operated Controls	Ignition switch, throttle lever, control levers, park brake, blade engagement switch, choke knob, and Fuel Tank Selector Valve.	
Indicators	Engine warning light and hour meter for engine run time.	
Cup Holder	Two cup holders molded into the left side fuel tank. Accommodates nearly any cup size.	
Cutting Height Adjustments	Height adjustment in 1/4" increments from 1" to 5".	
Mowing Blades	3 Heavy-duty, heat-treated, high-lift steel blades	
	.25" x 2 1/2" x 18.8"	.25" x 2 1/2" x 20.9"
Blade Tip Speed	18,515 FPM	18,700 FPM
Blade Drive	Single B-Section belt drive to all three spindles. Spring loaded take-up idler pulley.	
Blade Spindles	Machined ductile iron housing, 1 3/8" diameter high carbon steel shafts and greasable ball bearings.	
Deck Suspension	Four point suspension from frame by mechanical linkage with counter balance springs.	
Anti-Scalp Rollers	4 Anti-scalp rollers to improve flotation in rolling and uneven terrain.	



2/830

ZSR54 & ZSR60 Models

Features	Benefits
54" & 60" Cutting widths	Sized right and priced right for residential owners.
1 1/2" to 4 1/2" Cutting height	Provides a good range of cutting heights in 1/4" increments for any type of turf grass.
Narrow drive tire stance	Provides good maneuverability. Allows for tight turns, yet gives a very stable platform over uneven ground.
High ground speed	Can mow a lot of grass in a short time. 7.2 mph forward and 4.5 mph reverse
Adjustable steering levers with comfort grip handles	Wide range of adjustments to accommodate almost any size of operator. Grips are designed for operator comfort and sustained productivity.
Stronger clean frame design	Integral frame and hydraulic reservoir construction reduces component clutter under the seat for easy clean out and service access.
Single welded 10 gauge deck frame with reinforced edges	Makes a stronger deck and reduces unwanted flex.
Rapid deck height adjustment	The foot operated with spring assist deck lift and deck stop locator makes for a quick and easy precise cutting height adjustments.
Easy clean-out deck top	Deck allows air and debris move across the top for improved belt cooling and easy clean out.
Mid-mount deck design	Puts deck closer to operator's line of sight for more efficient and precise operation.
Floating deck design	Chain suspension design provides excellent flotation over uneven terrain.
Four anti-scalp rollers	Two located on deck ends and two located toward mid-decks keeps scalping to a minimum.
Hydro-Gear Zero-Turn Transaxle drive unit on each rear wheel	Each rear wheel has an integrated hydrostatic transaxle containing a pump with fan for cooling and drive motor. These units are self contained and maintenance free except for changing hydraulic filters.
ZT-3100™ Transaxles incorporate steel cut gears	Steel cut gears out perform powder metal gears in an abusive environment making steel cut gears cost affordable for high end users.
Wide rear turf tread tires 5-bolt, 20 x 10 -10 tires	Offers excellent ground flotation and gentle on turf grasses.
Front ribbed tires mounted in heavy duty pivoting caster forks	Provide for a quick and durable turning response.
Lockable floating front axle	Floating front axle provides for smoother ride, more uniform cut, and optimal traction capability by keeping all tires equally in contact with the ground over uneven terrain. Axle lock provides for temporary curb or edge cutting without grounding or hanging up the deck.
Electric clutch control	Provides an easy smooth engagement of the mower blade drive system.
Single Kevlar drive belts	Drive belts made with Kevlar™ fiber provide long belt life. One hydrostatic pump drive belt and one deck drive belt is easier to maintain and not as expensive as multiple belt designs.
1 3/8" blade spindles mounted in ductile iron housings	Blade spindles and spindle housings are designed to handle heavy shock loads.
Accessible blade spindle Zerks	Makes greasing the blade spindles easy.
Heavy duty heat treated Fusion® high lift blades	Made from highest quality .25" thick fusion treated steel for high wear and increase blade life. High lift design stands grass up before cutting.
High blade tip speed	Provides a clean quality cut. (18,300 fpm and higher)
Electric start with choke control	Keyed ignition and manual choke control are placed for one-handed starting convenience.
Engine oriented for easy access	Oil dipstick, oil drain ports, air filter, oil filter, spark plugs, choke, and throttle can be serviced from the rear verses the side.
Center mounted rear engine	Provides maximum mower stability, easy service access, increased leg room, and increased air flow around engine fins to extend engine life.
Engine air filtration	The smaller Kawasaki engines are provided with an internal proven 2-stage quick access filter cartridge. The larger Kawasaki engine is provided with a remote air intake that filters out 95 percent of airborne particles.
Isolated exhaust muffler	Muffler is hidden and tucked down under to reduce noise and provide protection against burns.

Features & Benefits to continue on next page.

ZSR54 & ZSR60 Models







Features	Benefits
Ergonomically designed control console	Instrumentation and console controls are positioned for easy visual and fingertip access.
Hour meter	Measure actual engine run time to monitor service intervals.
Sleek styling twin six gallon fuel tanks with extra large fuel caps	12 Gallon fuel capacity for plenty of operating range and decreased downtime. Extra large fuel openings for easy fueling. Fuel caps are placed inboard and center mounted to protect caps from damage and prevent overflow spills on inclines.
Fuel selector/shutoff valve	Provides on the go switching from one tank to another giving the operator time to finish the mowing job and to return to the refueling source before the mower stops running. Both tanks can be shutoff with this valve for servicing and storage.
Molded-in dual cup holders and storage compartments	Tanks are molded with cup holders that fit a wide variety of cups and are in easy access to the driver. A storage compartment molded next to the cups offer additional operator convenience.
Lever activated park brake	A manually activated over-center park brake lever located next to the operator's left side for easy activation and release of a spring applied pawl over cog brake in the transaxle. Mower will not move until brake is released.
Hinged seat platform	Provides easy service access to the compartment below the seat and is spring mounted for a smoother ride. Requires removal of only one bolt for quick access to components below.
Comfortable adjustable seat	Deluxe Cushion suspension with molded high back, adjustable arm rests, and adjustable seat positioning for operator comfort and sustained productivity.
Seat safety interlocks	Rising off of the seat with blades engaged will cut engine power and stop blade rotation. Engine cannot be started with blade engagement switch in "on" position.
Bolted on floor platform	Provides service access to topside deck components. Requires removal of only 2 bolts for quick access.
Certified ROPS	Certified ROPS for added operator protection.
Electric deck lift option	Makes lifting and lowering the deck easier.
Sun canopy accessory	Makes mowing more comfortable on hot sunny days. Helps protects against harmful sun rays. Designed to fit the folding ROPS.
EPA Compliant Mowers	
EPA approved six gallon fuel tanks with sight gauge, extra large tethered fuel caps and vent valve	12 Gallon fuel capacity for plenty of operating range and decreased downtime. Extra large fuel openings for easy fueling. Fuel caps are EPA approved, non vented, placed inboard, and center mounted to protect caps from damage and prevent overflow spills on inclines. EPA vent valve help stops fuel leaks in rollover accidents and sight gauge makes it easy to see low fuel level in tanks.
Fuel tanks are vented to the engine carburetor	Engine burns fuel vapors instead of vapors leaking into the atmosphere.

Troubleshooting Chart

Symptoms	Probable Causes	Suggested Remedies
Starting motor does not crank	Control levers are not in neutral position and fully out	Place control lever in neutral and fully out.
	Park brake not engaged (ON)	Engage park brake
	Control lever interlock switch is not adjusted correctly	Have your dealer re-adjust the interlock switch.
	Blade Engagement switch is engaged	Disengage blade switch
	Weak or dead battery	Recharge or replace
	Loose or broken switches and/or damaged electrical wiring.	Repair or replace switches and electrical wiring
	Other causes	See Engine Operator's Manual
Engine cranks but does not start	No fuel in the fuel tanks	Fill tank
	Fuel filter and/or fuel line plugged	Replace fuel filter and/or fuel line
	Fuel tank valve turned to "OFF"	Select a fuel tank with gasoline See Figure 5-14 on page 39.
	Fuel tank valve turned to an empty tank	Switch fuel valve to the other tank See Figure 5-14 on page 39.
	Other causes	See Engine Operator's Manual
Engine: Runs with continuous misfiring or engine runs unevenly or erratically	Other causes	See Engine Operator's Manual
Grass cutting is ragged or uneven	Dull, bent, or broken cutting blades	Sharpen or replace cutting blades
	Deck full of wet sticky grass	Clean underside of deck
	Cutting Blades are not operating at full engine speed	Increase engine rpms to full speed (3600 rpm) Check engine speed with Land Pride Inductive Tachometer, Part No. 890-909C
	Belt over center take-up is loose	Tension over center take-up
	Worn or broken belt	Replace worn and broken belt See "Belt Maintenance" on page 40
	Deck is not level	Check air pressure in all 4 tires Make level adjustments to the deck See "Deck Cutting Height And Leveling" on page 26

Troubleshooting Chart

Symptoms	Probable Causes	Suggested Remedies
Loss of power or system will not operate in either direction	Bypass valve is open	Close bypass valve See "Moving Mower with Stalled Engine" on page 18
	Linkage bolt is loose or lost	Replace linkage bolt
	Bad ground drive belt and/or pump idler pulley	Replace belt and/or idler pulley Tighten idler pulley if loose
	Loose, lost, or broken belt take-up rod	Reattach or replace belt take-up rod
	Restrictions in air cleaner	Service air cleaner
	Internal interference or leakage in Hydro-Drive	See your dealer
	Insufficient hydraulic oil supply	Check hydraulic oil level in expansion tank and add oil if needed
	Poor compression	See your dealer
	Steering linkage needs adjustment	Adjust linkage See "Seat Adjustment" on page 24
	Air in system	Check filter & fittings
	Other causes	See Engine Operator's Manual
Overheating	Air intake screen or cleaning fins clogged	Clean screen and fins
	Not operating engine at rated speed	Increase engine speed to 3600 rpm
	Other causes	See Engine Operator's Manual
Low oil pressure (Indicated by oil light on while engine is running.)	Low oil level	Add oil
	Oil diluted or too light	Change oil and check for source of contamination
High oil consumption	Other causes	See your dealer
Mower jerky when starting or operates in one direction only	Steering control linkage needs adjustment	Adjust linkage See "Steering Adjustments" on page 23
	Hydro-drive faulty	See your dealer
Hydraulic system operates hot	Hydro-drive faulty	See your dealer
	Not operating engine at rated speed	Increase engine speed to 3600 rpm
Steering levers do not return to neutral	Steering linkage rods are out of adjustment	Adjust linkage See "Steering Adjustments" on page 23
	Steering linkage rods are bent, broken, or missing.	Replace steering linkage rods See item 14 on page 41
	Transaxle neutral return spring is broken or missing	Replace transaxle neutral return spring
Mower creeps when steering control levers are in neutral	Transaxle neutral return spring is broken or missing	Replace transaxle neutral return spring
Mower circles or veers in one direction	Steering linkage needs adjustment	Adjust linkage See "Steering Adjustments" on page 23
	Hydro-drive faulty	See your dealer

Torque Values Chart													
Bolt Size (inches)	Bolt Head Identification						Bolt Size (Metric)	Bolt Head Identification					
													
in-tpi ¹	N · m ²	ft-lb ³	N · m	ft-lb	N · m	ft-lb	mm x pitch ⁴	N · m	ft-lb	N · m	ft-lb	N · m	ft-lb
1/4" - 20	7.4	5.6	11	8	16	12	M 5 X 0.8	4	3	6	5	9	7
1/4" - 28	8.5	6	13	10	18	14	M 6 X 1	7	5	11	8	15	11
5/16" - 18	15	11	24	17	33	25	M 8 X 1.25	17	12	26	19	36	27
5/16" - 24	17	13	26	19	37	27	M 8 X 1	18	13	28	21	39	29
3/8" - 16	27	20	42	31	59	44	M10 X 1.5	33	24	52	39	72	53
3/8" - 24	31	22	47	35	67	49	M10 X 0.75	39	29	61	45	85	62
7/16" - 14	43	32	67	49	95	70	M12 X 1.75	58	42	91	67	125	93
7/16" - 20	49	36	75	55	105	78	M12 X 1.5	60	44	95	70	130	97
1/2" - 13	66	49	105	76	145	105	M12 X 1	90	66	105	77	145	105
1/2" - 20	75	55	115	85	165	120	M14 X 2	92	68	145	105	200	150
9/16" - 12	95	70	150	110	210	155	M14 X 1.5	99	73	155	115	215	160
9/16" - 18	105	79	165	120	235	170	M16 X 2	145	105	225	165	315	230
5/8" - 11	130	97	205	150	285	210	M16 X 1.5	155	115	240	180	335	245
5/8" - 18	150	110	230	170	325	240	M18 X 2.5	195	145	310	230	405	300
3/4" - 10	235	170	360	265	510	375	M18 X 1.5	220	165	350	260	485	355
3/4" - 16	260	190	405	295	570	420	M20 X 2.5	280	205	440	325	610	450
7/8" - 9	225	165	585	430	820	605	M20 X 1.5	310	230	650	480	900	665
7/8" - 14	250	185	640	475	905	670	M24 X 3	480	355	760	560	1050	780
1" - 8	340	250	875	645	1230	910	M24 X 2	525	390	830	610	1150	845
1" - 12	370	275	955	705	1350	995	M30 X 3.5	960	705	1510	1120	2100	1550
1-1/8" - 7	480	355	1080	795	1750	1290	M30 X 2	1060	785	1680	1240	2320	1710
1-1/8" - 12	540	395	1210	890	1960	1440	M36 X 3.5	1730	1270	2650	1950	3660	2700
1-1/4" - 7	680	500	1520	1120	2460	1820	M36 X 2	1880	1380	2960	2190	4100	3220
1-1/4" - 12	750	555	1680	1240	2730	2010	¹ in-tpi = nominal thread diameter in inches-threads per inch ² N · m = newton-meters ³ ft-lb= foot pounds ⁴ mm x pitch = nominal thread diameter in millimeters x thread pitch						
1-3/8" - 6	890	655	1990	1470	3230	2380							
1-3/8" - 12	1010	745	2270	1670	3680	2710							
1-1/2" - 6	1180	870	2640	1950	4290	3160							
1-1/2" - 12	1330	980	2970	2190	4820	3560							
Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.													
Additional Torque Values													
Drive Wheel Lug Nuts (1/2"-20 UNF)								75 ft-lbs.			102 N-m		
Blade Spindle bolts (1/2"-20 UNF x 2 1/2" GR8)								60 to 70 ft-lbs.			82 to 95 N-m		
Spindle Housing Flange Bolts								55 ft-lbs			75 N-m		
Idler Pulley Bolts (5/8"-11 UNC GR5)								130 ft-lbs.			176 N-m		
Electric Clutch Bolt (7/16"- 20 UNF GR8)								50 to 55 ft-lbs.			68 to 75 N-m		
Hydro-Gear Top Port Plug (See Figure 5-11 on page 37, Item 4.)								15 ft-lbs.			20 N-m		
Chock & Throttle Cable Clamp Screws								35 in-lbs.			3.9 N-m		

Tire Inflation Chart	
Tire	Inflation PSI
Drive Wheels	8 to 12
Caster Wheels	8 to 12

Warranty

Land Pride warrants to the original purchaser that this Land Pride product will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for personal use.

Overall unit: 4 years limited warranty on Parts and Labor.

Kawasaki Engine: 3 years limited warranty through Engine manufacturer.

Hydraulic Wheel Motors and Pumps: 3 years on Parts and Labor.

Evaporative Emission Control System: 2 years limited warranty from point of first retail sale. Land Pride warrants to the original purchaser and any subsequent purchaser that this new non road equipment, including its Evaporative Emission Control system, is designed, built, and equipped so it conforms at the time of sale to the original purchaser with the requirements of Code Of Federal Regulations title 40 part 1060, and is free from defects in materials and workmanship that may keep it from meeting these requirements. Land Pride will repair or replace free of charge any of the components listed on page 59 which Land Pride determines to be defective.

Front Edge of Mower Deck: Limited warranty against all defects in the deck which results in the front edge of the deck being bent into the blades for the entire length of ownership by the original purchaser.

Frame: Frame breakage through the entire length of ownership by the original purchaser.

Blade Spindle bearings: 3 years Parts and Labor.

Front Caster Wheel Yoke Bearings: 3 years or 1200 hours Parts and Labor

Battery: 1 year limited warranty.

Rental Units: Limited warranty on all materials and workmanship for a period of 90 days.

Belts, blades, and tires are considered wear items.

Filters and Plugs are considered maintenance items.

This Warranty is limited to the repair or replacement of any defective part by Land Pride and the installation by the dealer of any such replacement part, and does not cover common wear items such as blades, belts, tines, etc. Land Pride reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in Land Pride's judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points, and driveline shafts.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must be made through such dealer. Any action for breach of warranty must be commenced within 25 months following delivery in non-rented application, and within 120 days following delivery in rented application.

This Warranty shall not be interpreted to render Land Pride liable for damages of any kind, direct, consequential, or contingent to property. Furthermore, Land Pride shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Land Pride within 30 days from the date of purchase by the end user.

IMPORTANT: The Online Warranty Registration should be completed by the dealer at the time of purchase. This information is necessary to provide you with quality customer service.

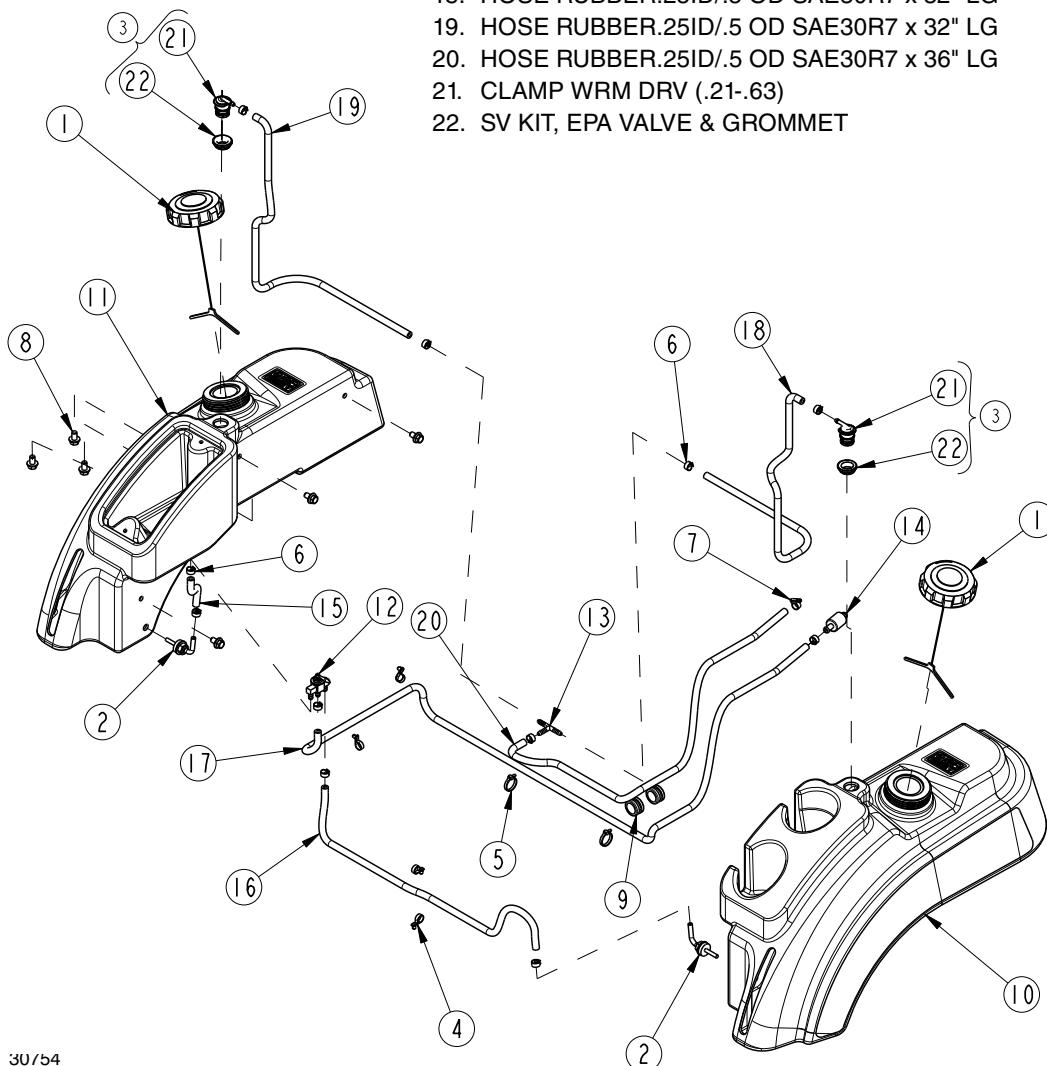
Model Number _____

Serial Number _____

Evaporative Emission Control Components

Refer to Figure 9-1:

1. CAP, NON-VENTED FUEL
2. GAS TANK FITTING W/NUT & WASHER
3. RETAINER PUSHIN, HOSE .56ID
4. CABLE TIE 2 DIA MIN - BLACK
5. CLAMP PINCH FOR .50 OD HOSE
6. HFSS 3/8-16X5/8 GR5 ZNYCR
7. GROMMET,.875X1.25X.25T
8. GROMMET, FUEL TANK FITTING (NOT AVAILABLE SEPARATELY)
9. LH FUEL TANK, RED, COMPLIANT
10. RH FUEL TANK, RED, COMPLIANT
11. VALVE, FUEL SELECTOR
12. TEE 1/4HB POLYPROP
13. EPA VALVE (NOT AVAILABLE SEPARATELY)
14. FUEL FILTER
15. HOSE RUBBER.25ID/.5 OD SAE30R7 x 5 1/4" LG
16. HOSE RUBBER.25ID/.5 OD SAE30R7 x 32" LG
17. HOSE RUBBER.25ID/.5 OD SAE30R7 x 65" LG
18. HOSE RUBBER.25ID/.5 OD SAE30R7 x 32" LG
19. HOSE RUBBER.25ID/.5 OD SAE30R7 x 32" LG
20. HOSE RUBBER.25ID/.5 OD SAE30R7 x 36" LG
21. CLAMP WRM DRV (.21-.63)
22. SV KIT, EPA VALVE & GROMMET



30/54

Evaporative Emission Control Components
Figure 9-1



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